

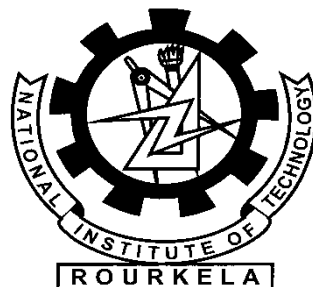
# **FINANCIAL ANALYSIS OF MINING PROJECTS**

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF

**Bachelor of Technology**  
**in**  
**Mining Engineering**

by  
**GOUTAM CHANDRA SAHA**

**Roll no.: 108MN007**



**DEPARTMENT OF MINING ENGINEERING**  
**NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA**

**2012**

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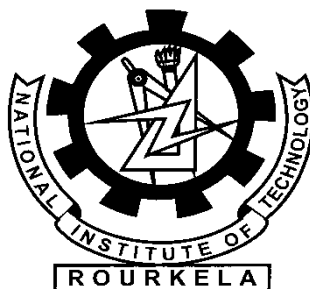
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**2012**



**NATIONAL INSTITUTE OF TECHNOLOGY**  
**ROURKELA**

**CERTIFICATE**

This is to certify that the thesis entitled “**FINANCIAL ANALYSIS OF MINING PROJECTS**” submitted by **Mr. Goutam Chandra Saha, Roll No: 108MN007** in partial fulfilment of the requirements for the award of Bachelor of Technology degree in Mining Engineering at the National Institute of Technology, Rourkela (Deemed University) is an authentic work carried out by him under my supervision and guidance.

To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other University/Institute for the award of any Degree or Diploma.

**Date:**

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**Date:**

**(Goutam Chandra Saha)**

## **ABSTRACT**

Financial analysis of mining projects can be known by studying the financial statements. Financial statements are official records of the financial actions of a company, firm or other unit over a period of time which provide a general idea of a company or person's financial situation in mutually short and long term. They give a precise representation of a company's condition and working results in a reduced form. Financial statements are used for supervision tool mainly by company executives and investor's in assess the overall situation and working results of the company.

Analysis of financial statements helps in formative the liquidity situation, long term solvency, financial feasibility and prosperity of a firm. Financial ratio analysis show whether the firm is performing well or not in past years. Furthermore, comparison of unlike aspect of the entire firms can be done efficiently with this. It helps the traders to make a decision in which firm the threat is less or maximum benefit can be earned.

Mining industry is capital demanding. For this reason a lot of capital is needed to invest in it. Before taking decisions on investing in such company, one has to cautiously study its financial status and worth. An effort has been made in this project to analyse the financial conditions of two non- coal and one coal mining company and one coal mine of MCL (CIL) has been carried out.

## **OBJECTIVES**

- Development of Turbo C++ of version 4.9.9.2 programs for balance sheet and income statement.
- Collecting financial data from different non-coal and coal companies.
- Analysis of financial statements of different non-coal and coal companies/mine.
- Comparing financial ratios of different companies.

Computer programs were developed in Turbo C++ for the preparation and analysis of balance sheet and income statement. The program can be upgraded/modified using other software to enhance its applicability.

The project was mainly focused on detailed studies on financial statements of different coal and non-coal companies and calculation of financial ratios. Ratio analysis of three companies i.e. Indian Rare Earths Ltd. (IREL), Hindustan Copper Ltd. (HCL), Coal India Limited (CIL) and one coal mine of MCL (CIL) was carried out.

- From ratio analysis of IREL of financial year 2006-07 to 2010-11 it was found that the company liquidity position was strong. Current ratio, quick ratio, cash ratio, gross profit margin, debt ratio, debt equity ratio, capitalization ratio were good while operating profit margin, net profit margin are not good except for the financial years 2006-07 to 2008-09. Return on assets (ROA) and return on equity (ROE) was unsatisfactory except for 2007-08. Fixed asset turnover ratio and total asset turnover ratio were less in all the financial years.
- In HCL, the working capital, quick ratio, gross profit margin, debt ratio, debt-equity ratio and capitalization ratio were good whereas current ratio is not high. Cash ratio was reported to be less during financial years 2008-10. Operating profit margin, net profit margin, ROE, return on investment (ROI), return on capital employed (ROCE), Return on long term funds were overall good. The profit margin was low in financial year 2008-09 due to sudden fall in copper price in International market.
- For CIL, the working capital, current ratio, quick ratio, cash ratio, gross profit margin, net profit margin, ROE, ROI, ROCE, debt ratio, debt-equity ratio and capitalization ratio were good but the operating profit margin, fixed asset turnover ratio and total asset turnover ratio were not. The operating expenses of CIL were too high.
- For Lakhanpur coal mine area, MCL the financial ratios were calculated for 2008-09 to 2010-11. Working capital, current ratio, quick ratio and cash ratio, debt ratio, debt-equity ratio and capitalization ratio were not satisfactory. So the mine may face shortage of cash due huge debts. Gross profit margin, operating profit margin,

net profit margin, ROE, ROI, fixed asset turnover ratio and total asset turnover ratio were reasonably good.

In this project, comparison of different ratios for three companies HCL, IREL and CIL was done for financial years 2006-07 to 2010-11.

- It was concluded that CIL was having very good financial condition in all the financial years and it could be seen that it was increasing as the financial year move ahead. HCL financial condition was not good as the value of current ratio of HCL could not reach to its limit. While IREL was having current ratio 1.41 in the year 2006-07 this showed the non-availability of cash but in other years the company maintained a well financial condition by keeping its current ratio above 2.
- Cash ratio of IREL was always good while CIL was having cash ratio below 1 for two consecutive financial years i.e. from 2006-08 but after that its cash ratio was above 1 hence the company was having enough cash in hand for handling any financial situation. But in case of HCL, the cash ratio was below 0.5 for financial years i.e. from 2008-10 so the company was not having enough cash with it during that financial years. While the company managed to maintain its cash ratio above 0.5 for other financial years
- The gross profit obtained by CIL is significantly higher than IREL and HCL. It means that CIL was making huge profit as compared to other two companies. Gross profit of IREL varied between 55-59% so the company was making consistently good profit for all the years. In HCL, gross profit was too low in 2008-2009 i.e. 32.33%. The reason for this reduction of profit was the decrease of copper price in world market.
- When comparing operating profit margin, it was seen that IREL was performing well by keeping the value above 25% during the financial years 2006-07 to 2008-09. In HCL the operating profit was very less in financial year 2008-09 due to sudden decrease in copper price in international market. But CIL operating expenses were so high that its operating profit margin was always negative.

- Return on assets of IREL was very high in financial year 2007-08. While for HCL, return on assets was negative in financial year 2008-09 and the net profit obtained by the company was negative i.e. there was a loss during that financial year, for which ROA became negative. While CIL had maintained a good ROA during the financial years 2006-11 that meant CIL utilized its assets properly as compared to the other companies.
- ROI of IREL was also good in 2006-09. ROI of HCL was very high in financial year 2006-07 and was very low in financial year 2008-09 due to decrease in copper price in world market. While CIL had maintained a good ROI during the financial years 2006-11 that meant CIL had utilized its investments properly.
- The debt ratio of CIL and IREL was nearly equal in all the financial years except the financial year 2006-07 in which the debt ratio of IREL was 0.53. HCL has decreased its debt ratio from 0.6 to 0.3 from financial year 2006-07 to 2009-10 but again rose to 0.353 from 0.3 in financial year 2010-11. It implies that the company borrowed some amount of money for expansion of its project.
- HCL had good fixed asset turnover ratio compared to other two companies as it was having very less fixed assets in initial years but later it decreased from 3.12 to 1.52 during 2006-07 to 2010-11. IREL maintained a good asset turnover ratio throughout. CIL turnover was very less as compared to its assets.



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# **CHAPTER-1**

## **INTRODUCTION**

Financial statements are official records of the financial actions of a company, firm or other unit over a period of time which provide a general idea of a company or person's financial situation in mutually short and long term. Financial statements are used for supervision tool mainly by company executives and investors in assessing the overall status and financial condition of the company. Financial statements are required for owner, shareholder, employee, future investor, income tax department. An investor who is interested to invest his money in a mining company will be keen to know about the economic performance and financial conditions of the company to ensure profitability and better return on investment. Limited studies have been carried out by investigators on financial analysis of mining companies. This project envisages to carryout detailed financial analysis of various non-coal and coal mining companies and determination of different financial ratios to provide tools for judicious decision making by the investors and mine management [1, 2].

### **1.1 Objectives**

- Development of Turbo C++ of version 4.9.9.2 programs for balance sheet and income statement.
- Collecting financial data from different non-coal and coal companies.
- Analysis of financial statements of different non-coal and coal companies/mine.
- Comparing financial ratios of different companies.

## **CHAPTER-2**

### **FINANCIAL ANALYSIS**

Financial analysis is the study of financial statements of an organization, to gain information about the current and future financial health of a company [3]. The process of evaluating businesses, projects, budgets and other finance-related entities to determine their suitability for investment is also known as financial analysis.

Financial analysis means assessment of the sustainability, solidity and profitability of a trade. Financial analysts study company financial statements and analyse commodity prices, sales, costs, expenses, and tax rates to determine a company's value by projecting its future earnings. Financial analysis helps for deciding how much it can afford to spend and how it will fund new priorities.

Financial analysis is needed to investor, lender, government, employee, customers and suppliers. It determines financial strength and weaknesses of the firm.

#### **2.1 Financial statements**

Analysis of financial statements is known as financial analysis. Financial statements (or financial reports) are formal records of the financial activities of a business, person, or other entity. Financial Statements articulate about the financial affairs of a business organization in both short and long term. For a business enterprise, all the relevant financial information, presented in a structured manner and in a format, which is easy to understand, are called the financial statements [4].

3 types of financial statements are mostly used:

##### **2.1.1 Balance sheet:**

A balance sheet summarizes an organization assets, equity and liabilities at a specific point in time. Understanding balance sheet is very important because it gives an idea of the financial strength of the company at any given point of time.

A balance sheet is usually divided in two sections, on left hand side assets are written and on right hand side liabilities and equity are written. When totalled, total assets equals to total liabilities and equity so it is called a balance sheet [2, 5, 6].

If any assets or (more commonly) liabilities that belong to the company in their economic effect do not appear on the balance sheet, they are referred to as off-balance sheet.

The terms that are used in balance sheet are:

**i) Assets:** A resource with economic value that an organization, corporation or company owns or controls with the expectation that it will provide future benefit.

Assets = Liabilities + Owner's Equity

Assets are of two types:

**a) Tangible assets:** These assets have substantial value. These include Office, plant, furniture, building, bonds.

**b) Intangible assets:** These assets have no physical value. These include technological collaborations, patents and copyright.

Tangible assets are of two types:

**A) Fixed assets:** Fixed assets, also known as a non-current asset, which cannot easily be transformed into cash. It is also referred as PPE (property, plant and equipment). It is a long term investment. Fixed assets are of different types, they are:

a) Office

b) Machinery

c) Furniture

**B) Current assets:** Current assets are cash and other material goods expected to be converted to cash, sold or used up either in a year or in the working cycle (whichever is shorter), without disturbing the normal operations of a business. These assets are continually turned over in the course of a business during normal business activity.

a) **Receivables:** A bill that is due to be paid.

b) Cash in hand, bank.

c) **Inventory:** Stock of goods that a company has on hand.

d) **Short term investments:** Investment which will be able to generate cash within one year.

Total Assets: It is the sum of fixed assets and current assets.

**ii) Liabilities:** A liability is defined as any type of borrowing from persons or banks for improving a business of an organization or company that is payable during short or long time. Liabilities are debts and obligations of the business they represent creditors claim on business assets. It is of two types, they are:

**A) Current liabilities:** These liabilities are reasonably expected to be liquidated within a year.

a) **Short term debt:** Debt which will be paid within a year.

b) **Notes Payables:** A legal agreement to banks or other creditors based on formal written promissory note, by which money is borrowed by the company.

c) Tax

d) Wages of employees.

**B) Non-current liabilities:** These liabilities are reasonably expected not to be liquidated within a year.

a) **Long term debt:** Debts such as loans and financial agreement which have maturities more than 1 year.

b) **Long term bonds:** Bonds which have maturity period more than 15 years. It pay higher rate of interest.

c) **Pensions:** Payments received by former employee after retirement.

**iii) Equity:** Equity capital is the belongings of the enterprise after deducting all its liabilities. Equity can be of:

a) **Share capital:** The portion of a company's cash that has been obtained (or will be obtained) by trading stock to a shareholder for money.

b) **Retained earnings:** Portion of net earnings which is retained by the company rather than distributed to its owners as bonuses.

c) **Shareholder's equity:** When total assets are greater than total liabilities, stockholders have a positive equity

Table 2.1 Format of a balance sheet as at 31<sup>st</sup> Dec, 2011 (All figures in rupees)

<b>ASSETS</b>		<b>LIABILITIES</b>	
<b>Fixed assets</b>		<b>Current liabilities</b>	
Land	20,000	Short term debt	16,296
Buildings	9,006	Tax	2,860
Equipment's	3,082	Wages	1,789
Total fixed assets	<b>32,088</b>	<b>Total current liabilities</b>	<b>20,945</b>
<b>Current assets</b>		<b>Non-current liabilities</b>	
Cash	21,150	Long-term bonds	10,128
Inventory	2,670	Long-term debts	8,450
Stocks	<b>10,000</b>	<b>Total non-current liabilities</b>	<b>18,578</b>
Short term investments	4,860	<b>Total liabilities</b>	<b>39,523</b>
Total current assets	<b>38,680</b>	<b>EQUITY</b>	
		Share	30,000
		Retained earnings	1,245
		<b>Total equity</b>	<b>31,245</b>
<b>Total assets</b>	<b>70,768</b>	<b>Total liabilities and equity</b>	<b>70,768</b>

As shown in the table all the summation of left hand side of fixed assets and current assets gives total assets. While all the summation of right hand side of liabilities and equity is equal to left hand side so the table is known as balance sheet.

Sometimes a balance sheet may be written in different format means assets and liabilities will be kept one after another instead of keeping them at two different sides.

### 2.1.2 Income statement

It is also known as profit and loss statement. It shows the profitability of a company during the time interval specified in its heading. Income statement shows revenues, expenses, gains, and losses. It does not show cash receipts (money received) nor cash payment (money paid out).

In Income statement format the name of the company appears first, followed by the title "Income Statement." The third line tells the reader the time interval reported on the income statement. Since income statements can be prepared for any period of time, so the time period must be mentioned.

The format of the income statement has the following terms in their income statements:

- a) **Revenue:** It is earnings that a corporation receives from its normal business activities, generally from the sale of goods. Revenue is also called as sales when a business enterprise earns cash after selling its goods. Revenue can be obtained by renting buildings or by depositing money in bank.
- b) **Expense:** It is an outflow of cash or other valued assets from an organization or company to another organization or company. Expense is the cash expend by an organization for procurement its work.

Income statement format is of 2 types:

#### i) Single-step form

In single-step form all the revenues are written first, and then they are added after revenue addition is completed all the expenses are noted then the expenses are summed. Income before tax is obtained by subtracting total expenses from total revenue. If the income before tax is positive then it is called net income which is obtained by deducting tax from net income before tax or if it is negative then it is called net loss [7].

Salient features of Single-step Income statement [8]:

- a) Simple and short.
- b) Better understood.
- c) Give stress on total costs and expenses and net income.

The single-step format uses only one subtraction to arrive at net income before tax.

Net income before tax = (Revenues + Gains) - (Expenses + Losses)

Net income = Net income before tax – Income tax

Table 2.2 Single-step income statement format [9]

XYZ Company	
Income statement	
For the Year Ended December 31,2007	
(in rupees)	
<b>Revenues</b>	
Net sales	96,500
Rental revenue	17,230
<b>Total revenues</b>	<b>113,730</b>
<b>Expenses</b>	
Cost of goods sold	60,570
Selling expenses	17,150
Administrative expenses	8,860
Internet expenses	1,860
<b>Total expenses</b>	<b>88,440</b>
<b>Income before income tax</b>	<b>25,290</b>
Income tax (40 %)	10,116
<b>Net income</b>	<b>15,174</b>

As shown in the table first of all total revenue was calculated then total expense was calculated. Deducting total expense from total revenue, income before tax was obtained which is then converted to net income after deducting income tax.

## ii) Multiple-step form

The multiple-step income statement shows operating revenues and expenses at the beginning of the statement and non-operating gains, expenses, and losses near the end of the statement.

However, various revenues or expenses are added or deducted throughout the statement at intermediate levels.

This form shows important amounts, such as gross profit on sales, operating income, income before taxes, and net income [7].

Table 2.3 Multiple-step income statement format [10]

XYZ Company			
Income statement			
For the Year Ended December 31,2007			
(in rupees)			
sales			96,500
Cost of goods sold			60,570
Gross profit on sales			35,930
<b><u>Operating Expenses</u></b>			
<b>Selling expenses</b>	17,150		
<b>Administrative expenses</b>	8,860	26,010	
<b>Income from operations</b>		9,920	
<b>Other revenues and Gains</b>			
Rental revenue			17,230
			27,150
<b>Non-operating Expenses and Losses</b>			
Interest expenses			1,860
Income before income tax			25,290
Income tax (40 %)			10,116
<b>Net income</b>			<b>15,174</b>

As shown in the table, Gross profit on sales is obtained by deducting cost of goods from sales. All the operating expenses are being added i.e. selling expense, administrative expense then operating expense is being deducted from Gross profit on sales to obtain income from operations. Rental revenue and income from operations were being added and deducted from



non-operating expenses to get income before tax. Income tax was deducted from income before tax to obtain net income.

### **2.1.3 Cash flow statement**

The cash flow statement is apprehensive with the flow of cash in also cash out of the business. The cash flow statement replicates a firm's liquidity. It excludes trades that do not directly affect cash profits and payments. The cash flow provides a clear understanding of a company's financial resources at a given point in time. These non-cash trades include depreciation or write-offs on bad debts or credit losses [11].

The money coming into the business is called cash inflow, and cash going out from the business is called cash outflow.

The cash from operating activities is related to the company's net income. If the cash from operating activities is steadily greater than the net income, the company's net income or earnings are said to be of a "high quality" and the company will be capable to increase its dividend, buy back some of its stock, reduce debt, or acquire another company. All of these are perceived to be good for stockholder value.

The cash flow statement is divided into 3 activities, namely:

- 1) Operating activities.
- 2) Investing activities.
- 3) Financing activities.

#### **A) Operating activities**

Cash signifying to run the day-to-day action of a business signifies operating activities. The operating activities are the supreme vital component of the cash flow statement, because it shows if a company is capable to turn a profit based on its current business at a certain moment of time [12].

The net cash flow from operating activities represents the cash made from the revenues minus expenses.

## **B) Investing activities**

Investing activities involve the purchase and sale of long-term investments. It shows the money paid in cash but not the actual amount [12].

For example if equipment is being purchased for Rs 5,000/- then Rs 1,000/- is being paid by cash and the remaining Rs 4,000/- is paid by financing company, then only Rs 1,000/- is shown in investing activities.

This includes property, plant, equipment, furniture, vehicles and stocks.

## **C) Financing activities**

Financing cash flow is associated to money in and out to investors and shareholders. When a corporation raises funds from bonds or stock, this is considered cash in. While dividends paid out to investors and interest paid to shareholders is considered cash out [12].

Cash inflow in financing activities include the issuance of bonds payable, the issuance of common stock, issuance of preferred stock, the sale of treasury stock, borrowing money on a long-term basis from a bank or other lenders, and other increases in long-term liabilities and stockholders' equity.

Cash outflow in the financing activities comprise the retirement of bonds payable, the purchase of a company's own stock, refund of long-term bank loans, the declaration and payment of dividends, and other decreases in long-term liabilities and stockholders' equity.

## **2.2 Financial ratios**

It is a simple mathematical comparison of two or more entries from a company's financial statements. Financial ratios are popularly used to compare financial performance over a period of time of same company or other company.

Financial ratios helps the owner, managers, investors and creditors to find out the financial health and performance of an firm and can be used for strategy and decision making of the firm[13,14,1,2].

Financial ratios can be classified according to the information they provide. The different types of financial ratios are:

**a) Net working capital:** It shows how much a firm has its current assets after deducting all its current liabilities. Mathematically it is given by,

Net working capital= current assets-current liabilities

Positive working capital means the business is able to pay off its short-term liabilities. A high working capital indicates that the company might be able to expand its operations.

Negative working capital means that the current business is unable to meet its short term liabilities with its current assets.

**b) Current ratio:** It measures firm ability to pay its debt in a short term notice (within 12 months). It is a ratio of current assets upon current liabilities.

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

Current ratio of 2:1 is considered to be acceptable. If current ratio is below 1, then the company will have problems in paying its bill on time. It has one disadvantage as it includes inventory which is difficult to liquidate easily so it is not an accurate measure of liquidity.

**c) Quick ratio:** It is a ratio of quick assets (current assets-inventory) upon current liabilities.

$$\text{Quick ratio} = \frac{\text{Quick assets}}{\text{current liabilities}}$$

Quick ratio should be 1:1. If it is lower than 1:1, it indicates that the firm relies too much on inventory or other assets to pay its short-term liabilities.

**d) Cash ratio:** It measures the immediate amount of cash available to the firm to satisfy its short-term liabilities. It is the ratio of cash and marketable securities to current liabilities.

$$\text{Cash ratio} = \frac{\text{cash} + \text{marketable securities}}{\text{current liabilities}}$$

Cash ratio of 0.5:1 is preferred. It is the most conservative look at a company's liquidity since; it considers only the cash and marketable securities. It is used by creditors when deciding how much credit; they would be willing to extend to the company.

**e) Gross profit margin:** It measures company's manufacturing and distribution efficiency during the production process [15].

$$\text{Gross profit margin} = \frac{\text{gross profit}}{\text{net sales}} \times 100$$

Gross profit = net sales - cost of goods sold.

Gross profit margin is expressed in percentage. Higher gross profit margin indicates that the company is able to control its production cost.

Low gross profit margin indicates that the company is unable to control its production cost.

**f) Operating profit margin:** It measures firm pricing strategy and operating efficiency.

$$\text{Operating profit} = \frac{\text{Operating profit}}{\text{Net sales}} \times 100$$

It is expressed in percentage. A high operating profit margin indicates the company is earning per rupee of sales [16].

**g) Net profit margin:** It measures how efficient a firm is and how well it controls its costs.

$$\text{Net profit margin} = \frac{\text{Net profit}}{\text{Net sales}} \times 100$$

It is expressed in percentage. Higher the net profit margin, more effective the firm is in converting revenue into actual profit [17].

**h) Return on Assets (ROA):** It measures how efficient firm assets in generating profit.

$$\text{ROA} = \frac{\text{Net income}}{\text{Average total assets}} \times 100$$

It is expressed in percentage. Higher the ROA, more money the company is earning on its assets. A low ROA shows inefficient use of company's assets.

**i) Return on Equity (ROE):** It shows how much profit the company is generating with the money invested by common shareholders.

$$\text{ROE} = \frac{\text{Net income}}{\text{Average shareholder's equity}} \times 100$$

Where,

Average shareholder equity=

$$\frac{\text{shareholder equity at the beginning of year} + \text{shareholder equity at the end of year}}{2}$$

ROE is expressed in percentage. A high ROE is preferred for a high dividend to the shareholder. ROE depends upon the capital invested in the company. If more capital investment is there in the company less will be ROE.

#### **j) Return on Investments (ROI):**

A performance quantity used to estimate the proficiency of an investment or to relate the proficiency of a number of dissimilar investments.

$$\text{Return on Investments} = \frac{\text{Net profits before tax}}{\text{Shareholders equity}} \times 100$$

It is expressed in percentage. Higher the ROI, more money the company is earning on its shareholder's equity. A low ROA shows inefficient use of shareholder's equity.

#### **k) Return on Capital employed (ROCE):**

ROCE compares incomes with capital financed in the company. It is similar to ROA, but takes into interpretation sources of financing. It is used to show the value the trade gains from its assets and liabilities.

$$\text{Return on Capital employed} = \frac{\text{Net operating profit after tax}}{\text{Capital Employed}} \times 100$$

Capital employed= Total assets + Current liabilities

Or

Capital employed= Fixed assets + Working capital

Higher ROCE is expected.

#### **l) Return on Long term funds**

It tells the amount of money gained by a trade of an organization from its long term investments.

$$\text{Return on Long term funds} = \frac{\text{EBIT}}{\text{Net sales}} \times 100$$

Higher return on long term funds is expected.

**m) Debt ratio:** It is used to determine the overall level of financial risk a company and its shareholders face due to debt of the company.

$$\text{Debt ratio} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

Debt ratio lies between 0 to 1. Higher value indicates more risk to company and it will be difficult to obtain loans for new projects or expansion of any project.

A low value indicates the company is less dependent on the money borrowed from or owed to others and the company has a strong equity position.

**n) Debt-Equity ratio:** It indicates how much amount of equity and debt the company is spending to finance its assets. A portion of a company's financial position is calculated by dividing its total liabilities to shareholder's equity.

$$\text{Debt-Equity ratio} = \frac{\text{Total liabilities}}{\text{Shareholder's equity}}$$

Debt-Equity ratio 1.0 means half of the assets of a firm are financed by debts and half by shareholders equity. Lower value of Debt-Equity ratio indicates less risk to the firm.

**o) Capitalization ratio:** It measures the debt component of a company's capitalization (i.e. the sum of long term debt and shareholder equity) to support firm operations and growth.

$$\text{Capitalization ratio} = \frac{\text{Long-term debt}}{\text{long term debt} + \text{Shareholders' equity}}$$

Low value indicates the company is in less debt.

**p) Interest coverage ratio:** It is used to determine how easily a company can pay interest expenses on outstanding debt.

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

Lower the ratio, more the company is burdened by debt expenses. When a company's interest coverage ratio is only 1.5 or lower, its ability to meet interest expenses may be questionable.

**q) Fixed asset turnover ratio:** It is a rough measure of productivity of a company's fixed assets with respect to general sales. It shows how well a company has turned its assets into revenue as well as how efficiently a company converts its sales into cash and increase shareholder value.

$$\text{Fixed-Asset turnover} = \frac{\text{Sales}}{\text{Fixed Assets}}$$

Higher the ratio, higher is the turnover of the company.

**r) Total asset turnover ratio:**

The total asset turnover signifies the amount of income generated by a business as an outcome of its assets.

$$\text{Total asset turnover} = \frac{\text{Net sales}}{\text{Total Assets}}$$

Higher the ratio, higher is the turnover of the company.

**s) Inventory Turnover ratio:**

The ratio shows how many times a firm's inventory is sold and substituted done over a period.

$$\text{Inventory Turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$

A low turnover implies poor sales and therefore excess inventory. A high ratio shows either good sale. High inventory levels are unhealthy because they represent an investment with a rate of return of zero. It also opens the company up to trouble should prices begin to fall.

**t) Days Working Capital:**

An accounting and finance term used to describe how many days it will take for a company to convert its working capital into revenue.

$$\text{Days Working Capital} = \frac{\text{Average Working Capital} \times 365}{\text{Annual Sales Revenue}}$$

The faster a company does this, the better.

## 2.3 Investment analysis

Investment analysis means the economic analysis of investment having the sole objective to determine profitability of a project. It's a future study of a project [18, 19].

Mining industry requires investment analysis when:

- Expansion of a mine had to take.
- A new project is taken.
- Replacement of machinery, without changing the basic operations.
- Changing the machinery with changing the basic operations to give more efficiency.

Investment analysis can be done in different methods like:

1. Pay-back period.
2. Accounting rate of return
3. Discounted cash flow method which includes
  - I. Net present value
  - II. Internal rate of return
  - III. Profitability index.

### 1) Pay-back period

Time period required to get back the cash from a project which is equal to original investment of the project. Project having lesser pay-back period must be chosen and having high rate of capital cash inflow during initial year. Less the time taken safer is the investor [20].

If cash inflow by the project is constant every year then it is calculated as:

$$\text{Pay-back period} = \frac{\text{initial investment}}{\text{constant annuity}}$$

### 2) Accounting rate of return

It is also known as average rate of return or ARR. It is a percentage return generated from net income after capital investment. The project is acceptable if ARR is equal to or more than expected rate of return. If ARR is less than required rate of return then the project is rejected [21].

ARR = average income after tax / average investment.



Average investment =  $\frac{\text{present value at the beginning of year} + \text{salvage value}}{2}$

Example: A project costs Rs 50,000 and has a scrap value of Rs. 10,000. Its stream of income before depreciation & taxes during first year through five years is Rs. 10,000, Rs. 12,000, Rs. 14,000, Rs. 16,000 & Rs. 20,000. Assume a 50% tax rate & depreciation on a straight-line basis. Calculate the accounting rate of return of the project.

Table 2.4 Calculation of average income

Year	1	2	3	4	5	Average
Earnings before dep. & taxes	10,000	12,000	14,000	16,000	20,000	14,400
Depreciation	8,000	8,000	8,000	8,000	8,000	8,000
Net earnings before taxes	2,000	4,000	6,000	8,000	12,000	6,400
Taxes @ 50%	1,000	2,000	3,000	4,000	6,000	3,200
Net earnings after taxes	1,000	2,000	3,000	4,000	6,000	3,200
Book Value of Investment						
Beginning	50,000	42,000	34,000	26,000	18,000	
Ending	42,000	34,000	26,000	18,000	10,000	
Average	46,000	38,000	30,000	22,000	14,000	30,000

$$\text{Accounting Rate of Return} = \frac{3,200}{30,000} \times 100\% = 10.67\%$$

As the project cost decreased by Rs. 40,000 in 5 years on a straight line basis (equal depreciation in each year) so depreciation for each year is Rs 8,000. This depreciation is now deducted from earnings before tax and depreciation.

### 3) Discounted cash flow method

In this method the value of project is evaluated on the basis of concept time value of money. All the future cash inflow of the project is estimated and discounted at a certain rate to calculate the present value [19, 22].

$$DPV = \sum_{t=0}^N \frac{FV_t}{(1+i)^t}$$

Where,

- DPV is the discounted present value of the future cash flow ( $FV$ ).
- $FV_t$  is the future value of a cash flow at any particular year.
- $i$  is the interest rate, which is in %.
- $t$  is the time in years.

#### 3.i) Net present value

NPV is a standard method of discounted cash flow (DCF) for using the time value of money to appraise long-term projects. In the case when all future cash flows are incoming and the only outflow of cash is the purchase price, the NPV is simply the PV of future cash flows minus the purchase price [19].

$$NPV = \sum_{t=1}^N \frac{A_t}{(1+i)^t} - P$$

Where,

- NPV is the net present value of the future cash flow ( $FV$ ).
- $A_t$  is the cash inflow at any particular year.
- $i$  is the interest rate, which is in %.
- $t$  is the time in years.
- $P$  is the present value of the project, which is initial investment.

If NPV is greater than 0 the project is accepted or if NPV is less than 0 the project is rejected. But if NPV is equal to 0 then it depends on other factors of the organization, for example an iron ore mine has NPV=0, but the steel industry is located nearby iron ore mine and both are of same organization then the project may be accepted.

### 3.ii) Internal rate of return

It is also called the discounted cash flow rate of return (DCFROR). The internal rate of return on an investment or project is the "rate of return" that creates the net present value of all cash flows (both inflow and outflow) from a particular investment equal to zero at a particular time. It is found by trial and error method.

Internal rates of return are commonly used to evaluate the suitability of projects. The higher a project's internal rate of return, the more desirable it is to undertake the project. If all projects require the same amount of initial investment, the project with the highest IRR would be considered the best and undertaken first [19].

$$0 = \sum_{t=1}^N \frac{A_t}{(1 + IRR)^t} - P$$

Where,

- $A_t$  is the cash inflow at any particular year.
- IRR is the internal rate of return, which is in %.
- $t$  is the time in years.
- $P$  is the present value of the project, which is initial investment.

If IRR is greater than required rate of return then the project is accepted or if IRR is less than required rate of return then the project is rejected. IRR shows that the organization will get at least required rate of return.

### 3.iii) Profitability index (PI)

It is the ratio of present value of the future cash inflow, at the required rate of return to the initial cash outflow of an investment. It is a modified method of NPV [19].

$$PI = \frac{\text{present value of future cash inflow}}{\text{initial cash outflow}}$$

Or

$$PI = \frac{\sum_{t=1}^N \frac{A_t}{(1+i)^t}}{P}$$

Where,

- PI is profitability index.
- $A_t$  is the cash inflow at any particular year.
- $i$  is the required rate of return, which is in %.
- $t$  is the time in years.
- $P$  is the present value of the project, which is initial investment.

If  $PI > 1$  the project is accepted but if  $PI < 1$  the project is rejected.  $PI$  is greater than one that means NPV is positive. If  $PI=1$  that means NPV is zero.

## 2.4 Hoskold's formula to mine valuation

Hoskold considered that a mining investor expects to recover his original investment during the life of the mine, so mining return may be considered in two parts [19]:

- a) The amount necessary to set aside, at safe rate of interest ( $r$ ), for the recovery of original investment
- b) The amount which the investor expects as interest on his speculative investment ( $r'$ ).

The present value of the mine can be given by:

$$PV = \frac{A}{\frac{r}{R^n - 1} + r'}$$

Or:

$$PV=A.f$$

Where,

- PV=present value of the property.
- r=safe rate of interest, which is in %.
- r' =speculative rate of interest, which is in %.
- A=constant annuity during the life of the mine.
- R= (1+r), in one year.
- f= Hoskold's factor.

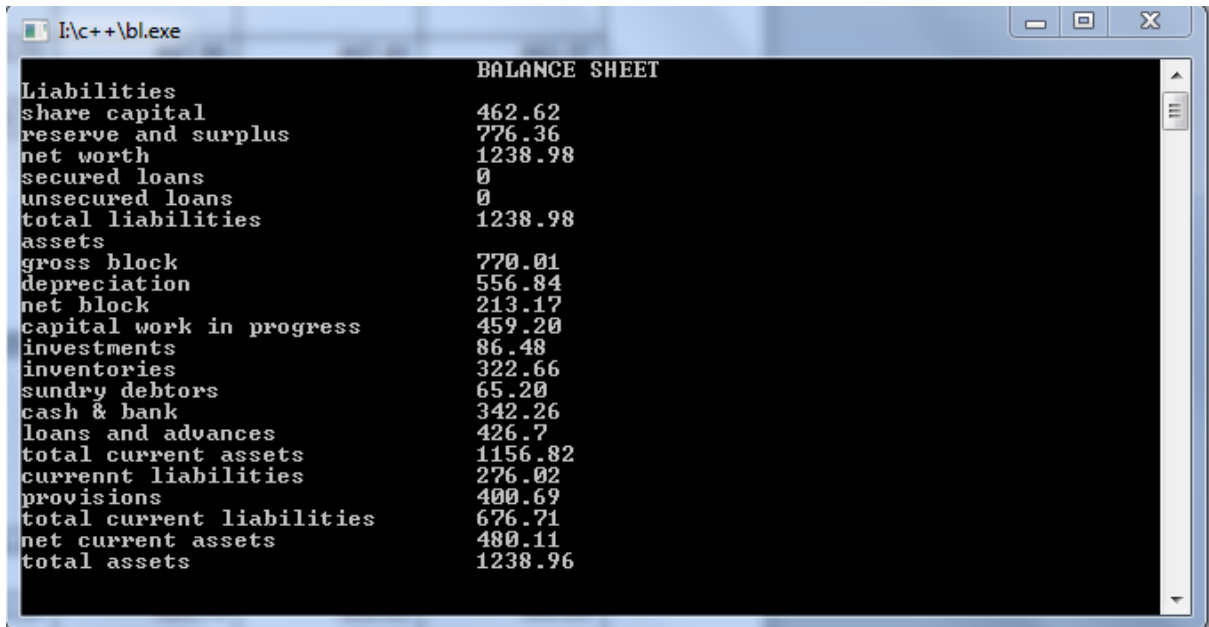
Commercial exploitation of the mine may not take place after the purchase of the mine due to some development that have to take place earlier. So if m is the deferment period, which is in years and r'' is the rate of interest during the period of deferment, then the present value is given by:  $PV = A.f. \frac{1}{(1+r'')^m}$

## CHAPTER-3

### DEVELOPMENT OF C++ PROGRAMME FOR BALANCE SHEET AND INCOME STATEMENT

The program for preparation of balance sheet and income statement has been done in turbo C++ of version 4.9.9.2 and the output has been shown below in Fig 3.1 and fig 3.2 [23]:

#### 3.1 Output for preparation of Balance Sheet

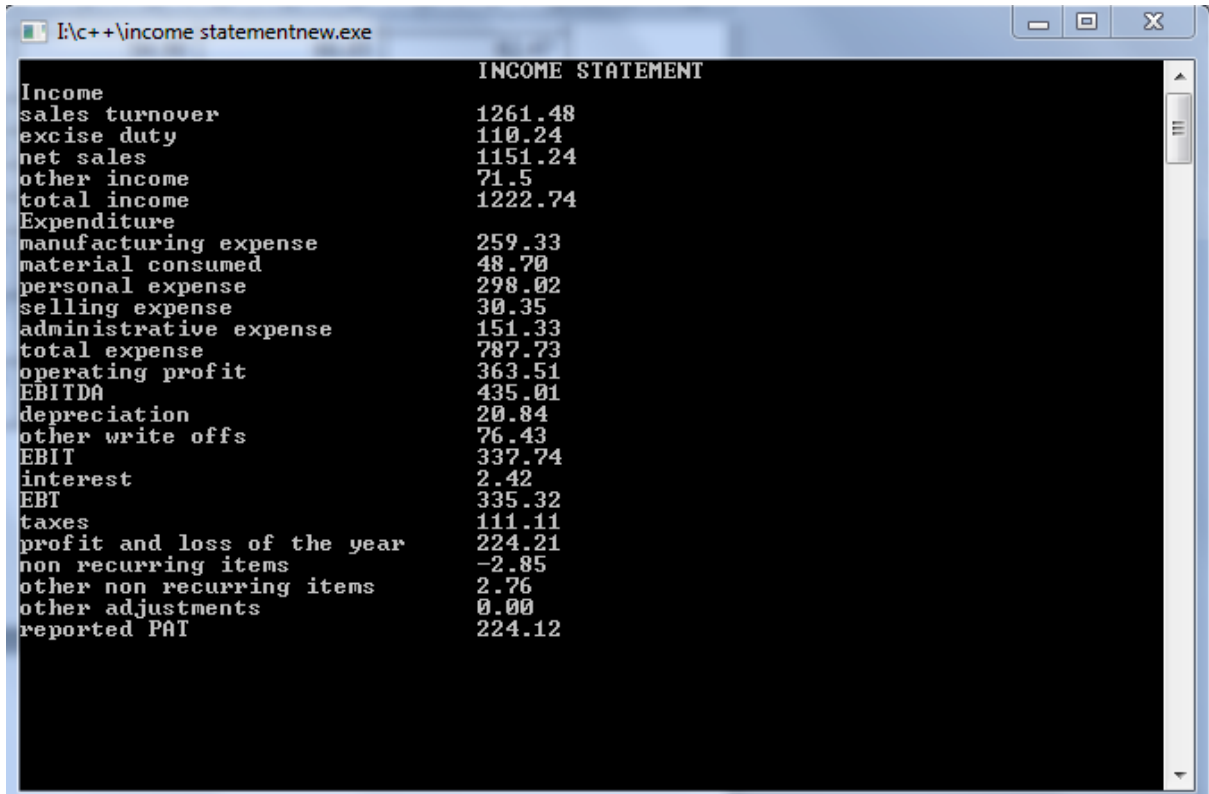


BALANCE SHEET	
Liabilities	
share capital	462.62
reserve and surplus	776.36
net worth	1238.98
secured loans	0
unsecured loans	0
total liabilities	1238.98
assets	
gross block	770.01
depreciation	556.84
net block	213.17
capital work in progress	459.20
investments	86.48
inventories	322.66
sundry debtors	65.20
cash & bank	342.26
loans and advances	426.7
total current assets	1156.82
current liabilities	276.02
provisions	400.69
total current liabilities	676.71
net current assets	480.11
total assets	1238.96

Fig. 3.1 Output of balance sheet

(The data has been taken from Table 4.2.1 of March '11 )

### 3.2 Output for preparation of Income Statement



INCOME STATEMENT	
Income	
sales turnover	1261.48
excise duty	110.24
net sales	1151.24
other income	71.5
total income	1222.74
Expenditure	
manufacturing expense	259.33
material consumed	48.70
personal expense	298.02
selling expense	30.35
administrative expense	151.33
total expense	787.73
operating profit	363.51
EBITDA	435.01
depreciation	20.84
other write offs	76.43
EBIT	337.74
interest	2.42
EBT	335.32
taxes	111.11
profit and loss of the year	224.21
non recurring items	-2.85
other non recurring items	2.76
other adjustments	0.00
reported PAT	224.12

Fig. 3.2 Output of Income statement

(The data has been taken from Table 4.2.2 of March '11)

## CHAPTER-4

### 4.1 INDIAN RARE EARTHS LIMITED

#### 4.1 Introduction

Indian Rare Earths Limited (IREL) is a government-owned corporation. IREL operates four units i.e. Rare Earths Division (RED) Aluva, Orissa Sands Complex (OSCOM), Manavalakurichi (MK) Mineral Division, Chavara Mineral Division with Corporate Office in Mumbai. IREL produces and sells six heavy minerals i.e. Ilmenite, Rutile, Zircon, Monazite, Sillimanite and garnet. Corporate Research Centre is located at Kollam, Kerala and carries out research in the field of value added products from beach sand minerals, undertakes consultancy projects on mineral separation and flow sheet development, carrying out mineral analysis and caters to the needs of internal and external customers [24].

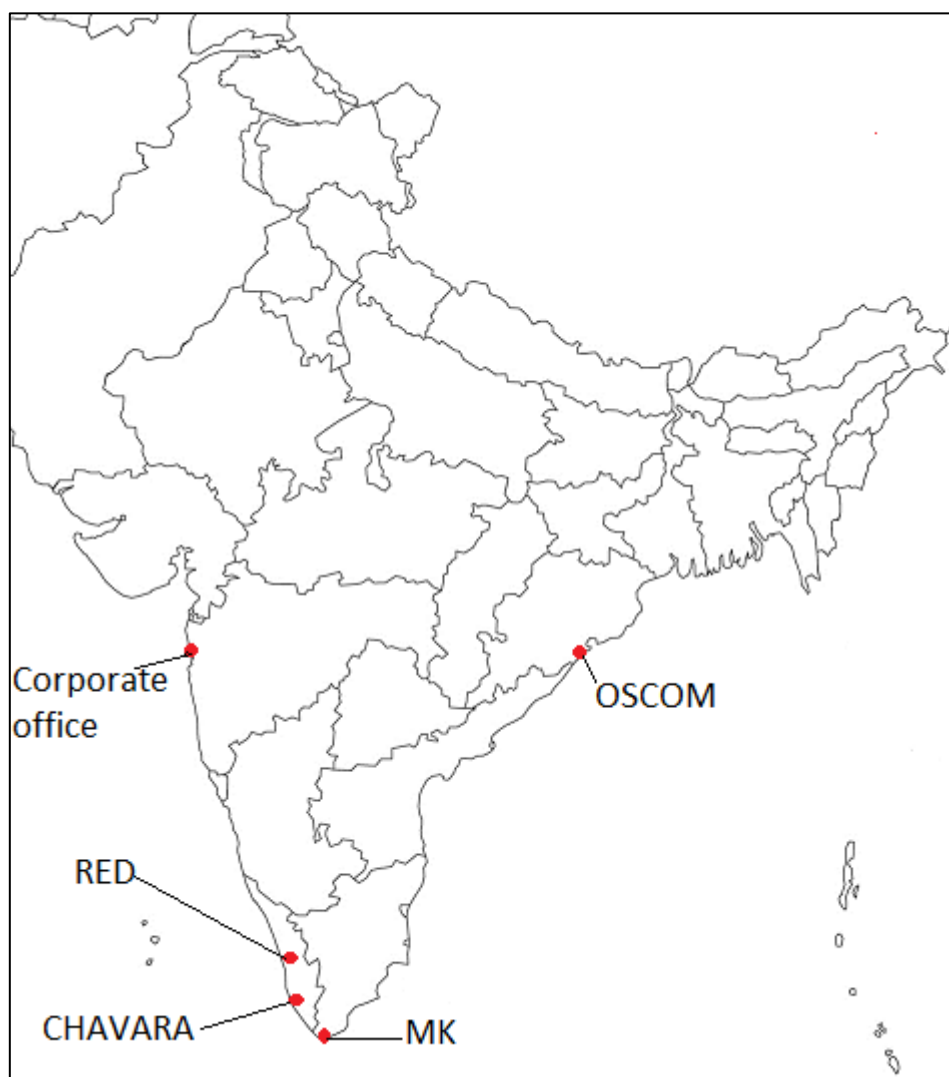


Fig. 4.1 Location of IREL units [28]



Table 4.1.1 Balance sheet of Indian Rare Earths Ltd as per 31<sup>st</sup> Mar'11 (All figures in Rs. Crores) [29, 30, 31].

	Mar'11	Mar'10	Mar'09	Mar'08	Mar'07
<b>I. SOURCES OF FUNDS:</b>					
1. Shareholder's Funds					
a) Capital	8,636.50	8,636.50	8,636.50	8,636.50	8,636.50
b) Reserves and Surplus	40,104.33	38,922.48	38,629.23	34,973.31	22,236.49
Total	48,740.83	47,558.98	47,265.73	43,609.81	30,872.99
2. Loan Funds					
Secured Loans	0.00	0.00	0.00	9.31	17.68
Unsecured Loans	1,106.81	2,213.61	3,320.42	4,427.23	5,534.03
Total	1,106.81	2,213.61	3,320.42	4,436.54	5,551.71
<b>Total</b>	<b>49,847.64</b>	<b>49,772.59</b>	<b>50,586.15</b>	<b>48,046.35</b>	<b>36,424.70</b>
<b>II. APPLICATION OF FUNDS:</b>					
1. Fixed Assets					
a) Gross Block	46,840.06	45,370.48	43,955.80	43,062.78	37,235.00
b) Less: Depreciation	27,672.51	26,075.08	24,495.93	22,801.74	20,719.54
c) Net Block	19,167.55	19,295.40	19,459.87	20,261.04	16,515.46
d) Capital Works in progress	1,357.58	927.45	709.22	672.21	4,897.03
e) Assets Pending Disposal	3.32	0.39	0.49	15.74	28.55
Total	20,528.45	20,223.24	20,169.58	20,948.99	21,441.04
2. Investments	1.42	1.42	1.42	1,258.51	545.32
3. Deferred Tax Assets (Net)	0.00	0.00	1,603.98	523.34	4,237.34
4. Current Assets, and Advances					

Current Assets					
a) Inventories	4,572.70	6,571.89	6,020.81	5,500.08	4,829.13
b) Sundry Debtors	180.14	785.76	833.48	2,641.61	3,169.17
c) Cash and Bank Balances	31,342.02	26,829.57	27,281.30	23,381.71	20,201.24
d) Other Current Assets	2,088.02	1,171.05	1,485.22	0.00	0.00
e) Loans and Advances	8,811.41	7,662.61	7,577.76	7,703.85	6,239.96
Total	46,994.29	43,020.88	43,198.57	39,227.25	34,439.50
Less: Current liabilities and provisions:					
a) Current Liabilities	12,154.07	6,429.86	5,631.43	5,958.68	4,097.06
b) Provisions	6,965.7	9,307.95	8,908.35	8,069.85	20,258.23
Total	19,119.77	15,737.81	14,539.78	14,028.53	24,355.29
Net Current Assets	27,874.52	27,283.07	28,658.79	25,198.72	10,084.21
5. Miscellaneous expenditure					
Pre-Project expenditure(Net)	142.82	170.83	152.38	116.79	116.79
<b>Total</b>	<b>49,847.64</b>	<b>49,772.59</b>	<b>50,586.15</b>	<b>48,046.35</b>	<b>36,424.70</b>

Table 4.1.2 Profit and loss statement of Indian Rare Earths Ltd as at 31<sup>st</sup> Mar'11 (All figures in Rs. Crores).

	Mar'11	Mar'10	Mar'09	Mar'08	Mar'07
<b>I. INCOME</b>					
Gross Sales	38,865.90	33,715.60	33,989.8	29,625.02	36,053.22
Less: Excise duty	16.29	5.84	13.83	27.77	41.22
Net Sales	38,849.61	33,709.76	33,975.25	29,597.25	36,012.00
Compensation for processing Thorium	783.18	979.06	1,443.83	1,918.25	706.54
Increase/(Decrease) in Stock	(1,776.36)	1,135.38	5.47	778.74	(2,682.11)
Other Income	3,374.65	2,581.58	3,873.74	2,663.13	2,305.47

<b>Total</b>	<b>41,231.08</b>	<b>38,405.78</b>	<b>39,343.29</b>	<b>34,957.37</b>	<b>36,341.90</b>
<b>II. EXPENDITURE</b>					
Materials Consumed	3,767.16	3,978.44	3,790.89	3,045.24	3,433.31
Employee's Remuneration and Benefits	17,549.07	16,432.21	14,586.80	11,449.21	10,378.10
Manufacturing and Other Expenses	12,379.84	11,213.05	10,447.21	10,010.33	11,333.86
Interest	150.69	40.95	233.36	219.29	17.77
Depreciation	2,025.11	2,003.07	1,973.30	2,164.10	1,733.08
Capital expenditure not represented by assets owned by the Company - written off	0.00	0.00	0.00	12.40	12.40
<b>Total</b>	<b>35,871.87</b>	<b>33,667.72</b>	<b>31,031.56</b>	<b>26,900.57</b>	<b>26,908.52</b>
Profit before Extra- ordinary items, prior period adjustments and taxation	5,359.21	4,738.06	8,311.73	8,056.80	9,433.38
Extraordinary Items and Prior Period Adjustments (Net)	(115.46)	43.44	(23.68)	14,818.98	571.84
Profit Before Tax	5,243.75	4,781.5	8,288.05	22,8775.78	10,005.22
Provision for Tax	2,054.38	2,474.10	2,611.25	7,318.29	3,582.51
<b>Profit After Tax</b>	<b>3,189.37</b>	<b>2,307.40</b>	<b>5,676.80</b>	<b>15,557.49</b>	<b>6,422.71</b>

#### 4.1.2 Ratio analysis: financial year 2006-07 to 2010-11

Table 4.1.3 Analysis of Financial Ratios of IREL from financial year 2006-07 to 2010-11

<b>Financial ratios</b>	<b>2006-2007</b>	<b>2007-2008</b>	<b>2008-2009</b>	<b>2009-2010</b>	<b>2010-2011</b>	<b>Remarks</b>
Working capital (in Rs crores)	10,084.21	25,198.72	28,658.8	27,283.07	27,874.52	Good
Current ratio	1.41	2.8	2.97	2.73	2.46	Good
Quick ratio	1.22	2.44	2.56	2.32	2.22	Safe
Cash ratio	0.83	1.67	1.88	1.71	1.64	Good
Gross profit margin (in %)	59	55.9	58.1	55	58.44	Good
Operating profit margin (in %)	26.24	28	25.15	14.2	14.2	Poor
Net profit margin (in %)	17.83	52.56	16.71	6.84	8.21	Not desirable
Return on assets (in %)	12.05	26.81	9.2	3.64	4.88	Not good
Return on equity (in %)	22.4	41.77	12.5	4.87	6.62	Not considerable
Return on investments (in %)	32.41	52.45	17.53	10.05	10.75	Average
Return on capital employed (in %)	28.2	21.31	18	9.92	11.49	Not good
Return on long term funds (in %)	26.24	28	25.15	14.17	14.18	Satisfactory
Debt ratio	0.53	0.31	0.28	0.28	0.30	Good. As less debt.
Debt-Equity ratio	0.97	0.42	0.38	0.38	0.41	Safe

Capitalization ratio	0.18	0.10	0.07	0.05	0.02	Excellent
Interest coverage ratio	53.19	37.74	36.67	116.7	36.56	Considerable
Fixed-Asset turnover ratio	1.68	1.41	1.68	1.67	1.9	Less turnover of the company
Total assets turnover ratio	0.7	0.5	0.55	0.53	0.6	Poor
Inventory turnover ratio	2.76	2.53	2.47	2.41	2.9	Considerable
Days working capital	131	218	290	303	260	Good

The data obtained from Table 4.1.3 is plotted in Fig. 4.1.1 to Fig. 4.1.20 as shown below:

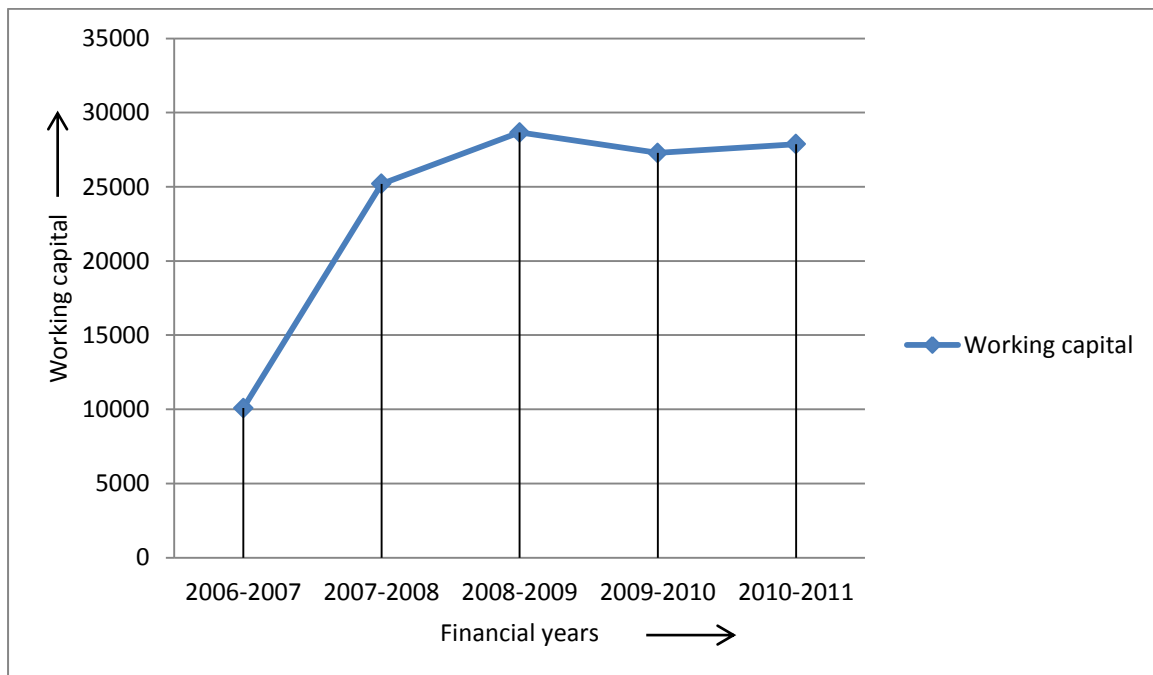


Fig. 4.1.1 Working capital of IREL from financial year 2006-07 to 2010-11

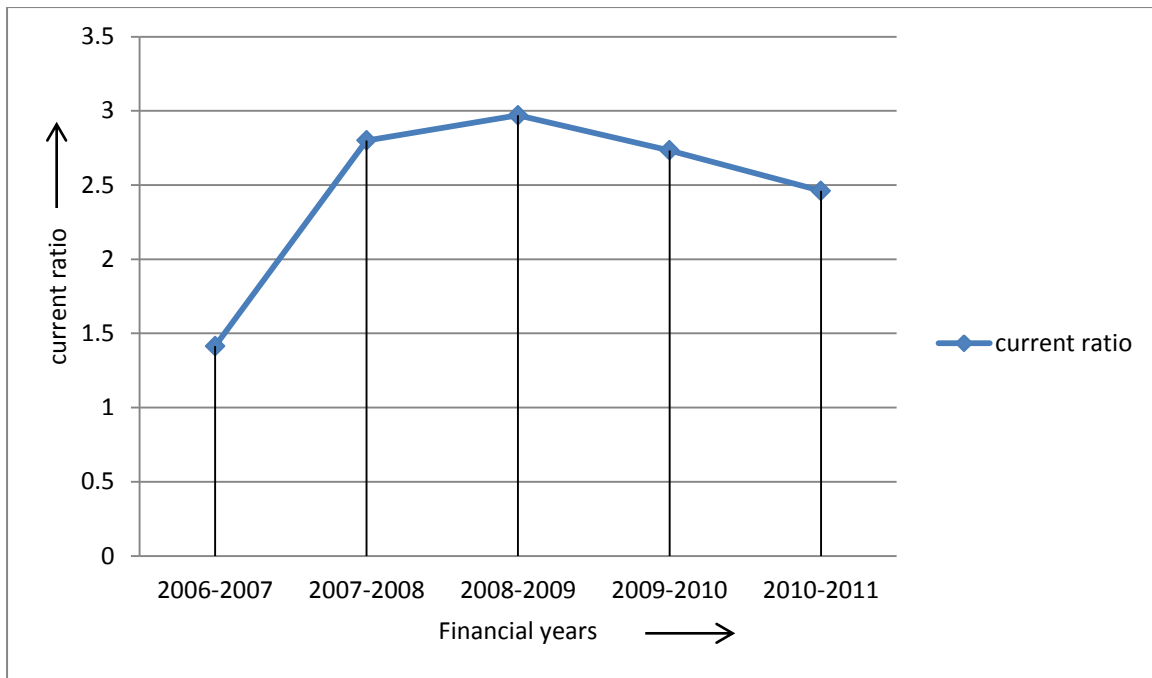


Fig. 4.1 2 Current ratio of IREL from financial year 2006-07 to 2010-11

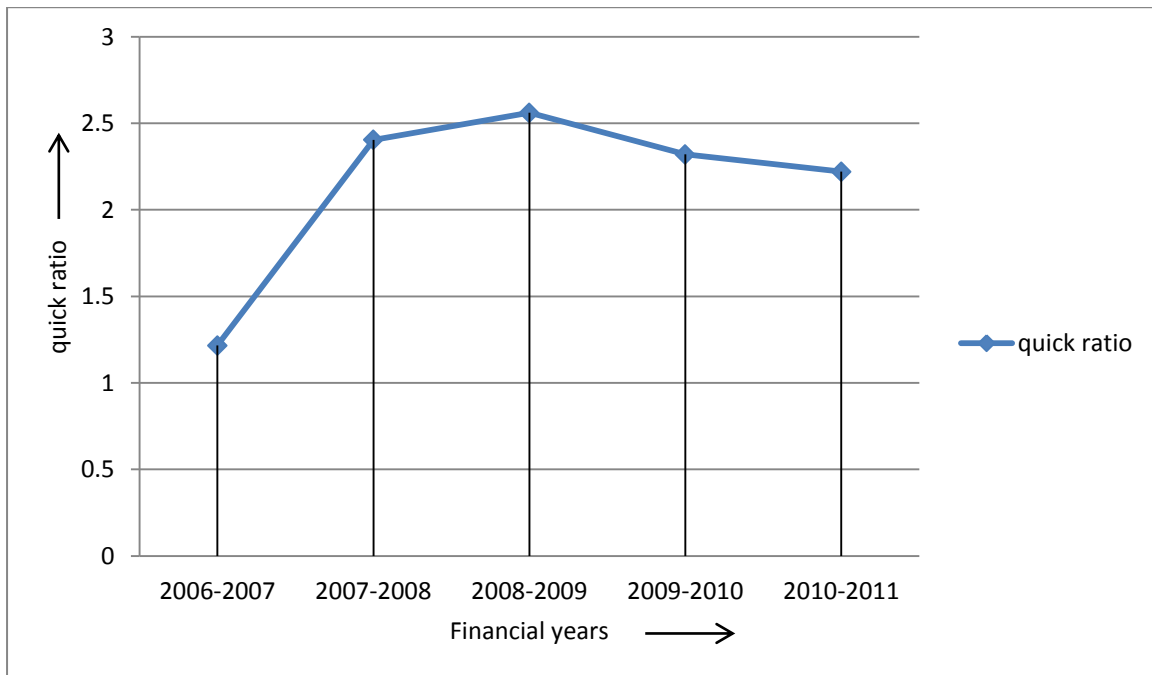


Fig. 4.1.3 Quick ratio of IREL from financial year 2006-07 to 2010-11

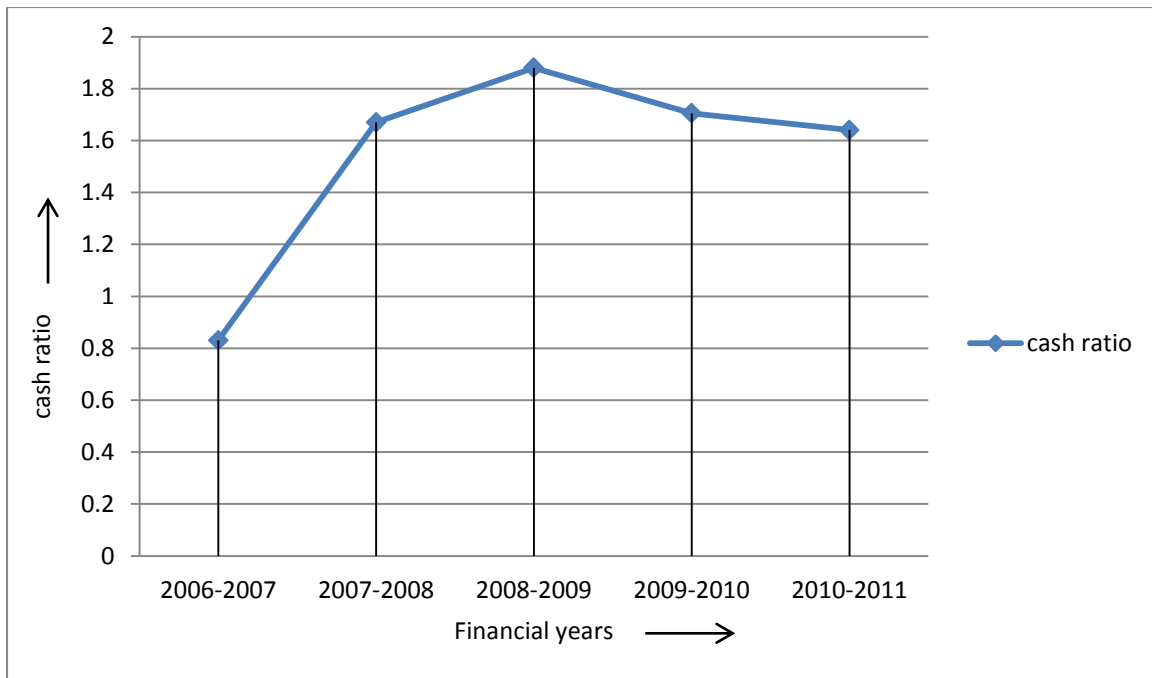


Fig. 4.1.4 Cash ratio of IREL from financial year 2006-07 to 2010-11

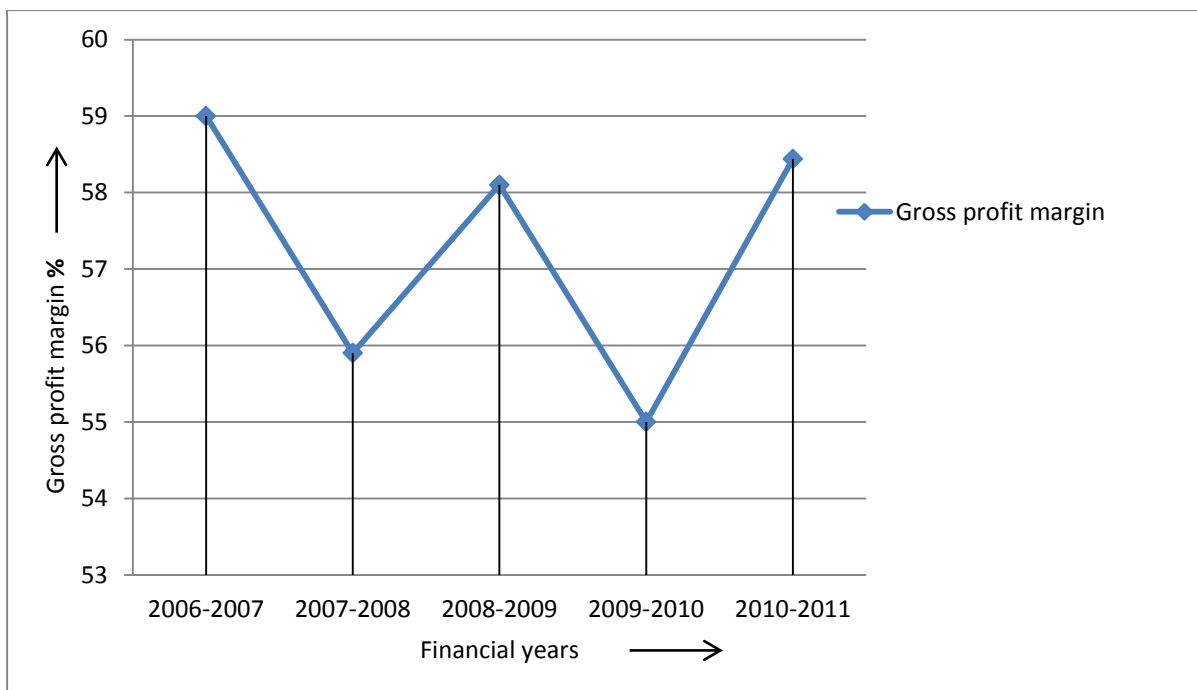


Fig. 4.1.5 Gross profit margin in % of IREL from financial year 2006-07 to 2010-11

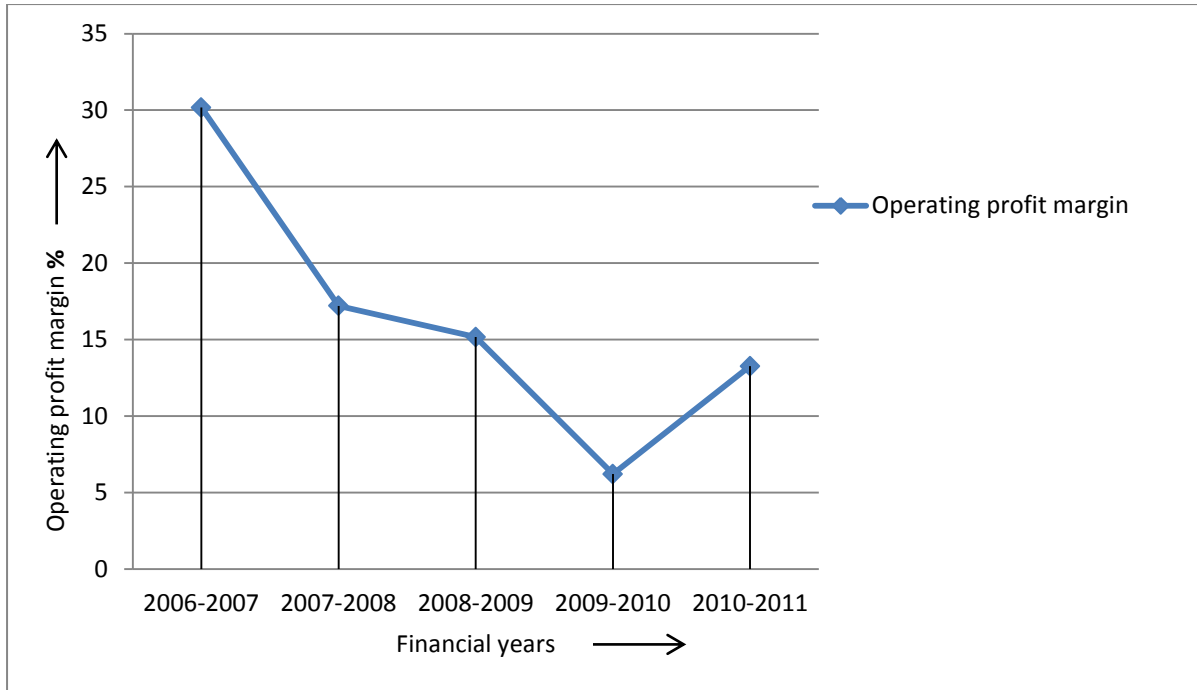


Fig. 4.1.6 Operating profit margin in % of IREL from financial year 2006-07 to 2010-11

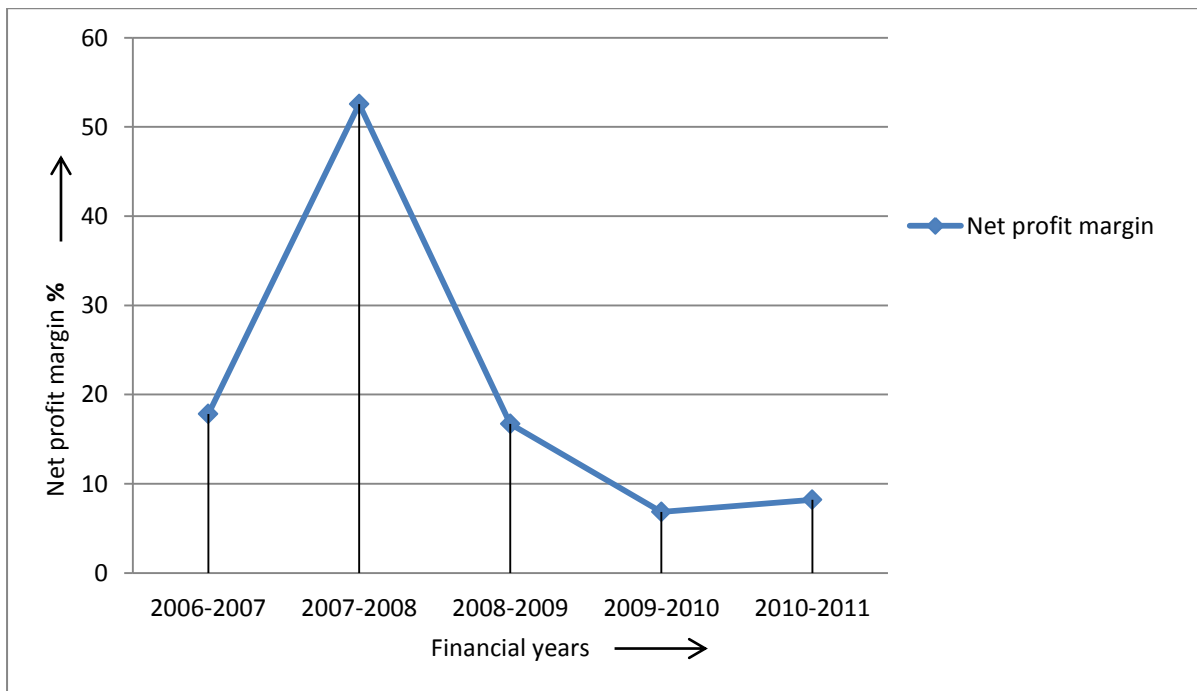


Fig. 4.1.7 Net profit margin in % of IREL from financial year 2006-07 to 2010-11



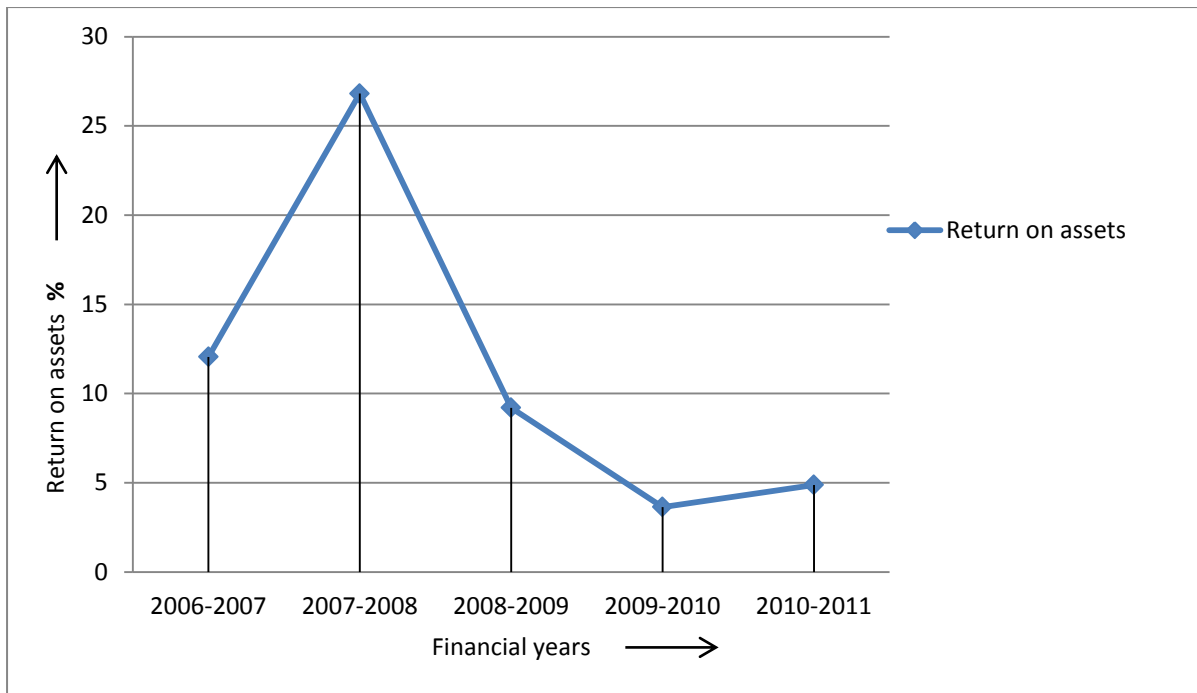


Fig. 4.1.8 Return on assets in % of IREL from financial year 2006-07 to 2010-11

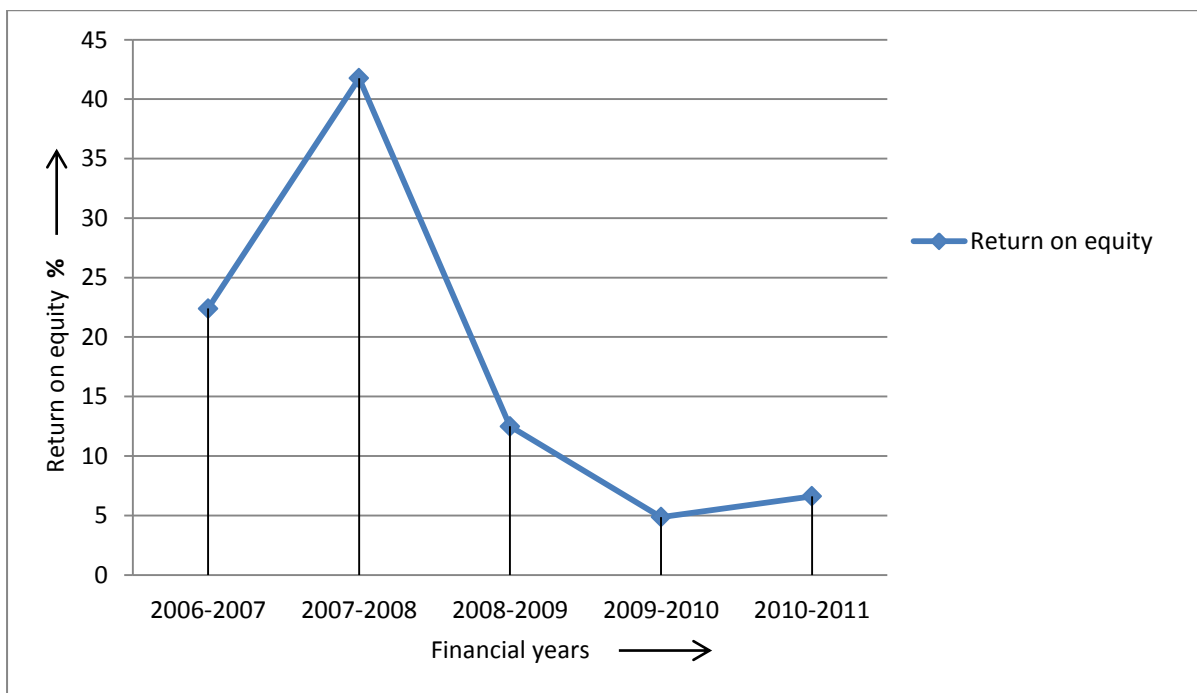


Fig. 4.1.9 Return on equity in % of IREL from financial year 2006-07 to 2010-11

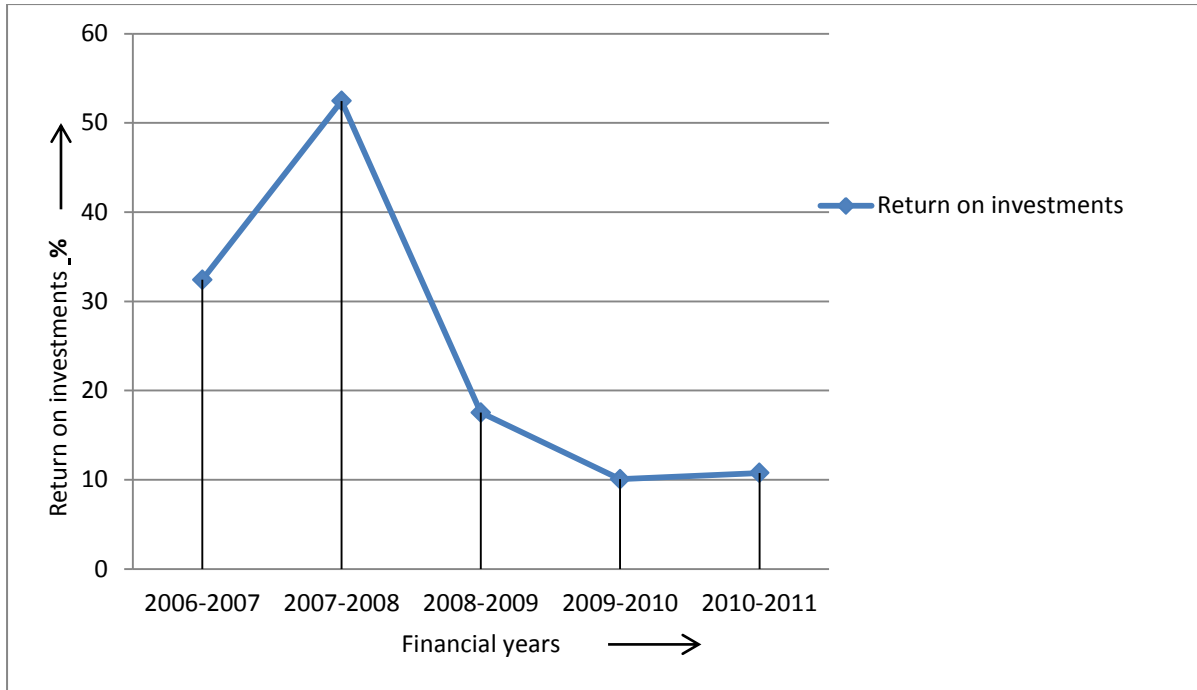


Fig. 4.1.10 Return on investments in % of IREL from financial year 2006-07 to 2010-11

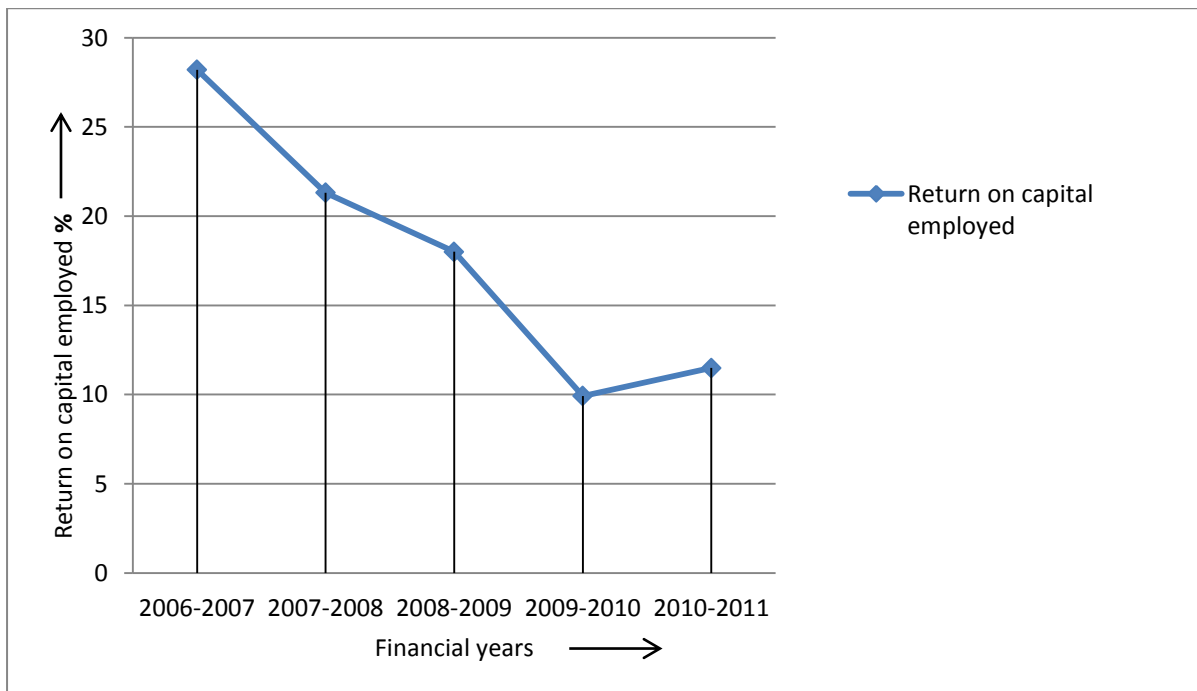


Fig. 4.1.11 Return on capital employed in % of IREL from financial year 2006-07 to 2010-11

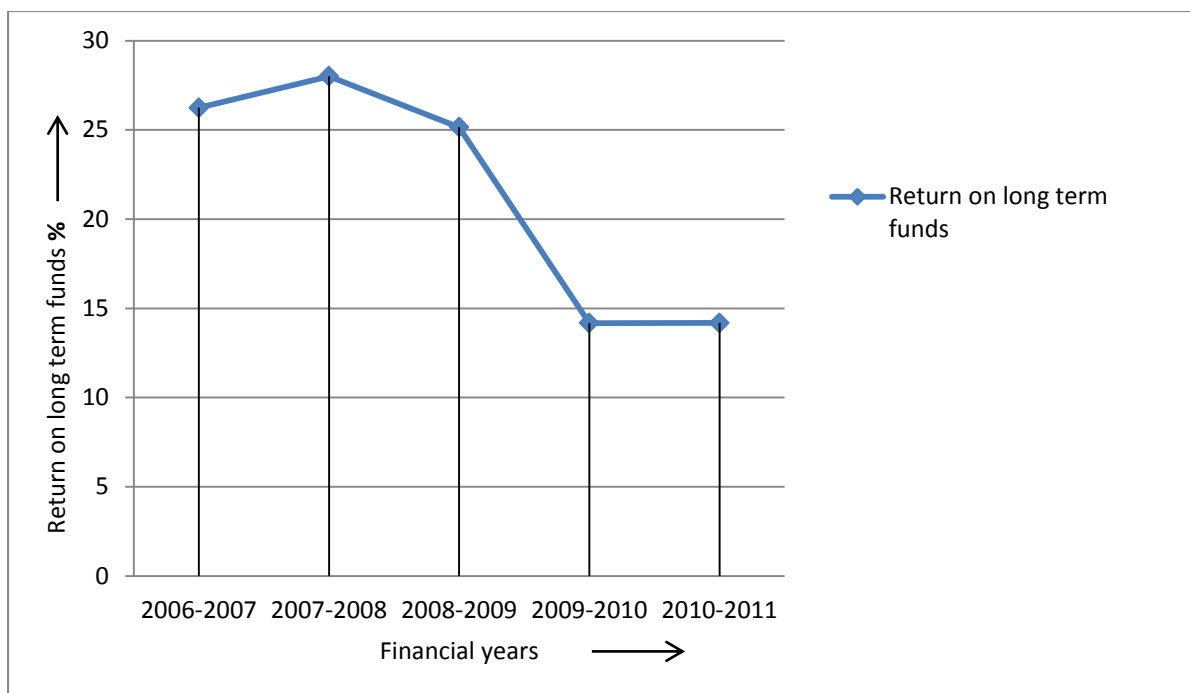


Fig. 4.1.12 Return on long term funds % of IREL from financial year 2006-07 to 2010-11

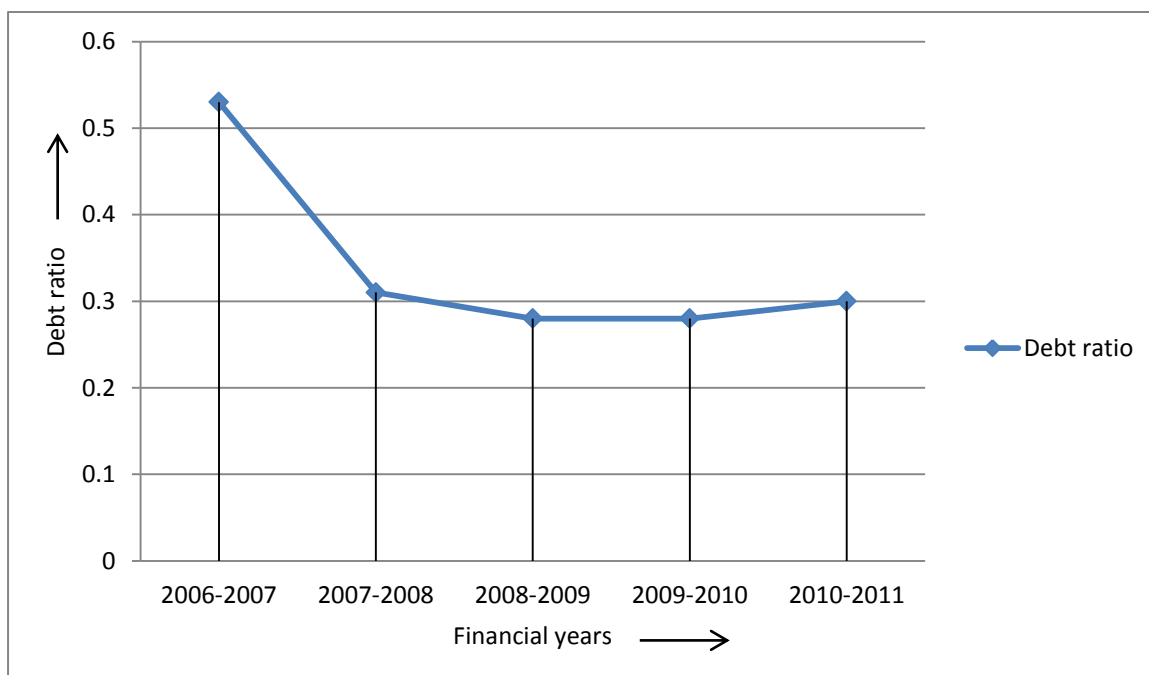


Fig. 4.1.13 Debt ratio of IREL from financial year 2006-07 to 2010-11

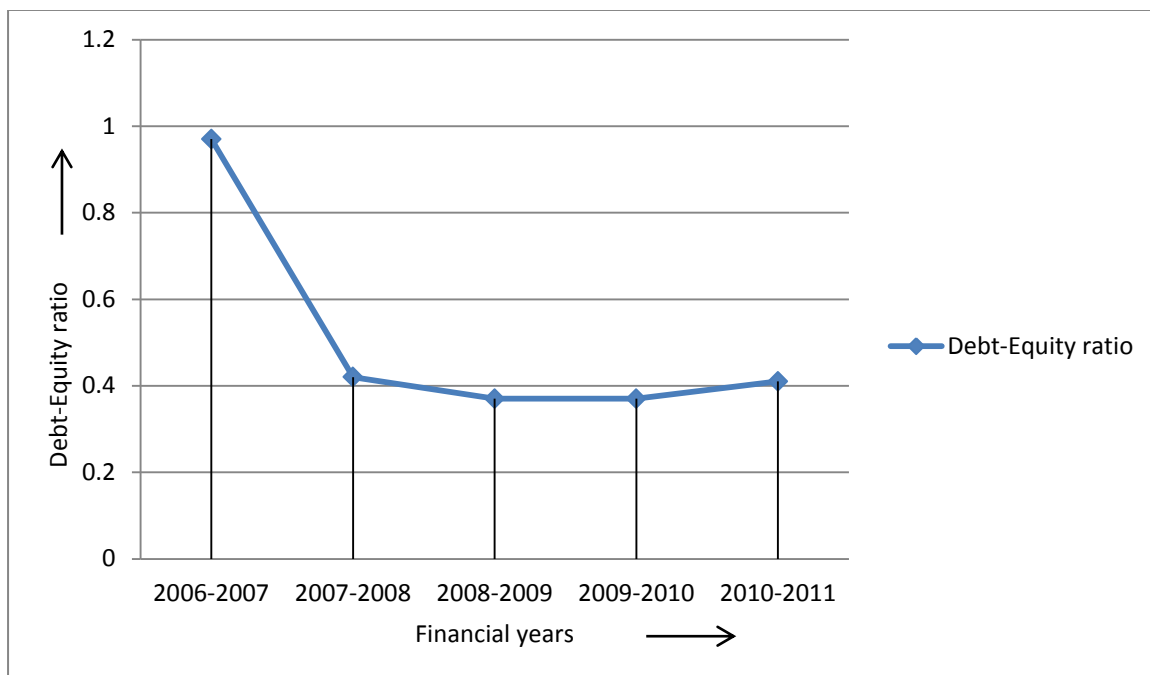


Fig. 4.1.14 Debt-Equity ratio of IREL from financial year 2006-07 to 2010-11

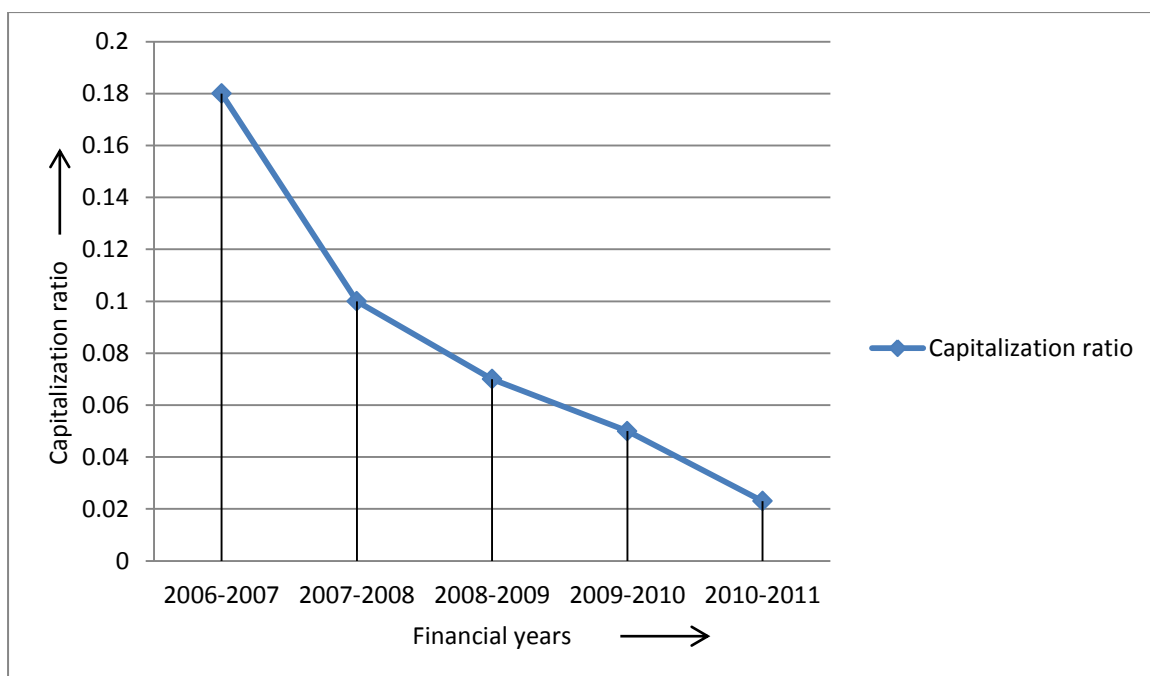


Fig. 4.1.15 Capitalization ratio of IREL from financial year 2006-07 to 2010-11

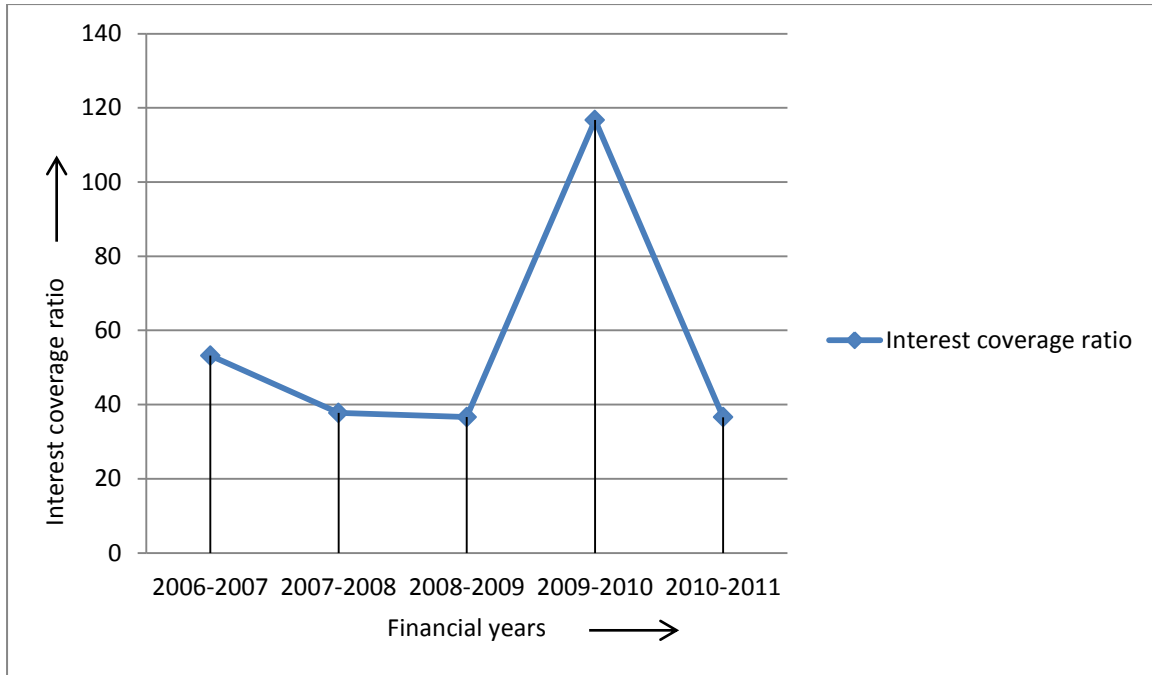


Fig. 4.1.16 Interest coverage ratio of IREL from financial year 2006-07 to 2010-11

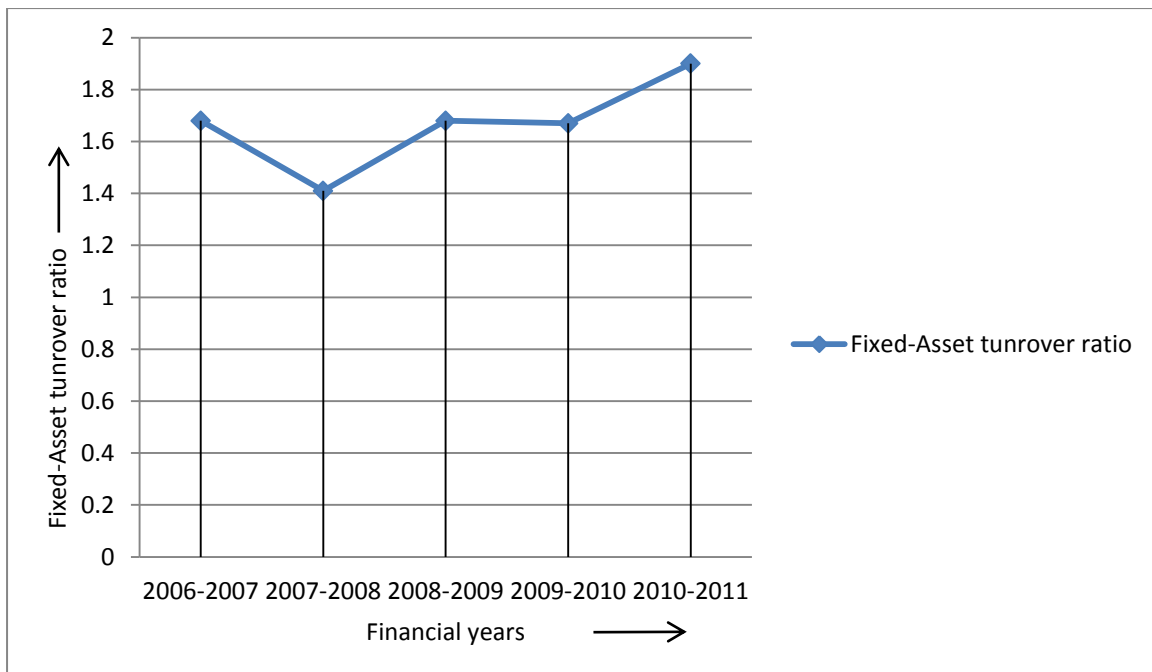


Fig. 4.1.17 Fixed-Asset turnover ratio of IREL from financial year 2006-07 to 2010-11

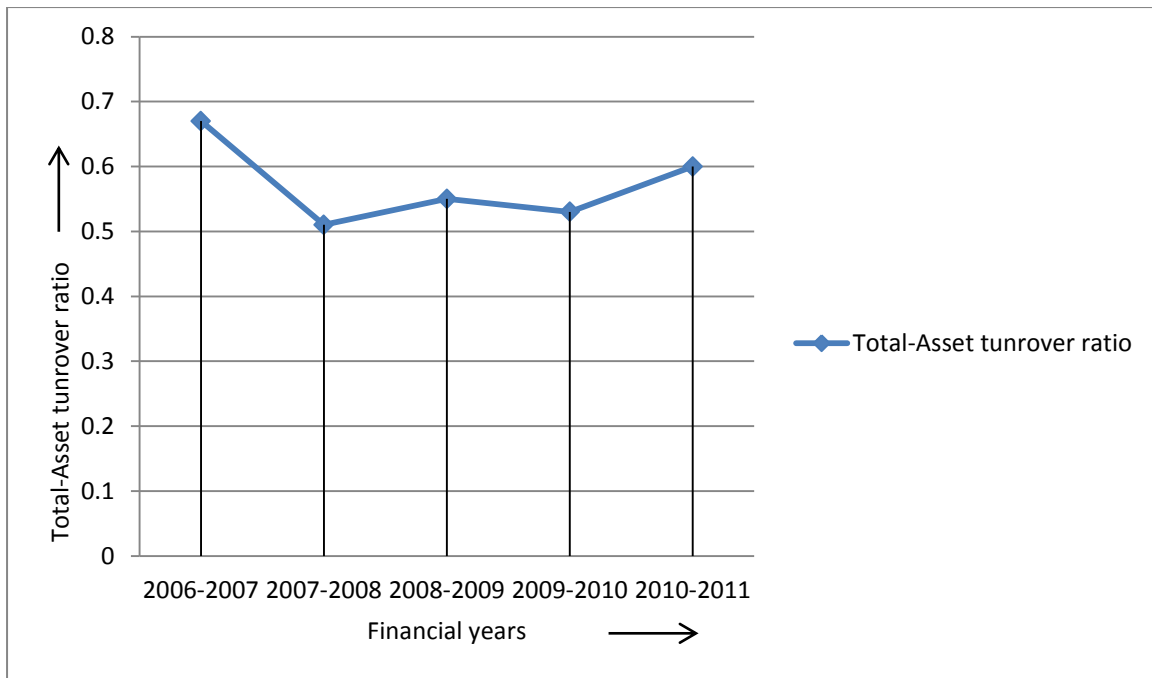


Fig. 4.1.18 Total-Asset turnover ratio of IREL from financial year 2006-07 to 2010-11

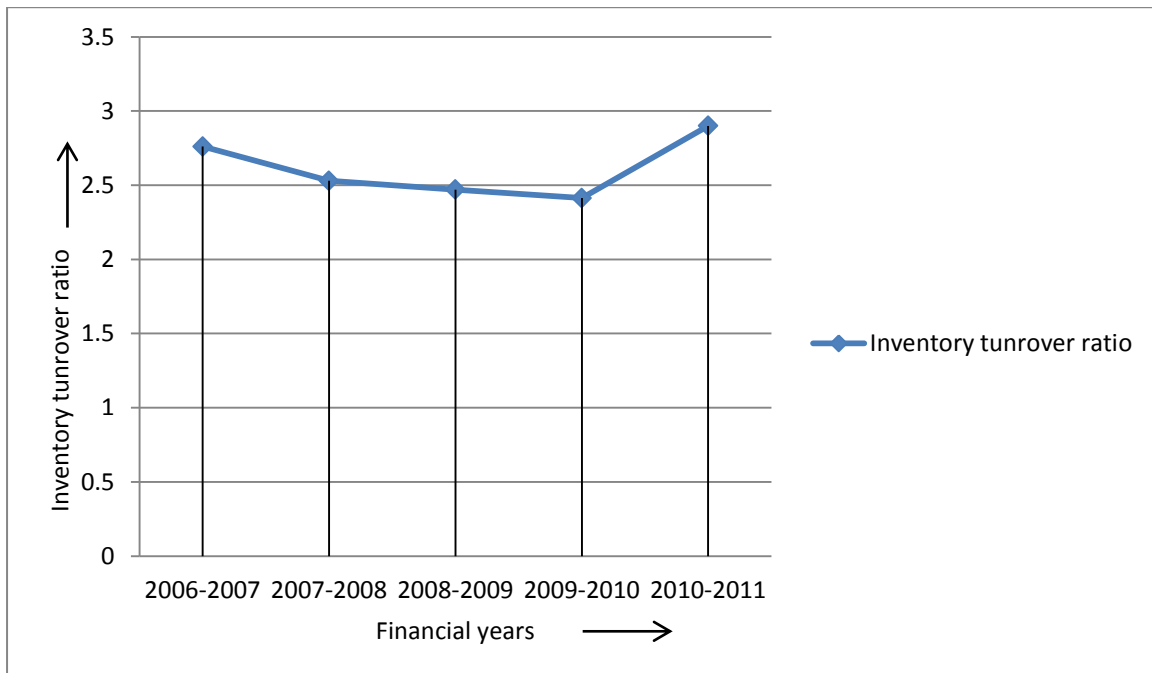


Fig. 4.1.19 Inventory turnover ratio of IREL from financial year 2006-07 to 2010-11

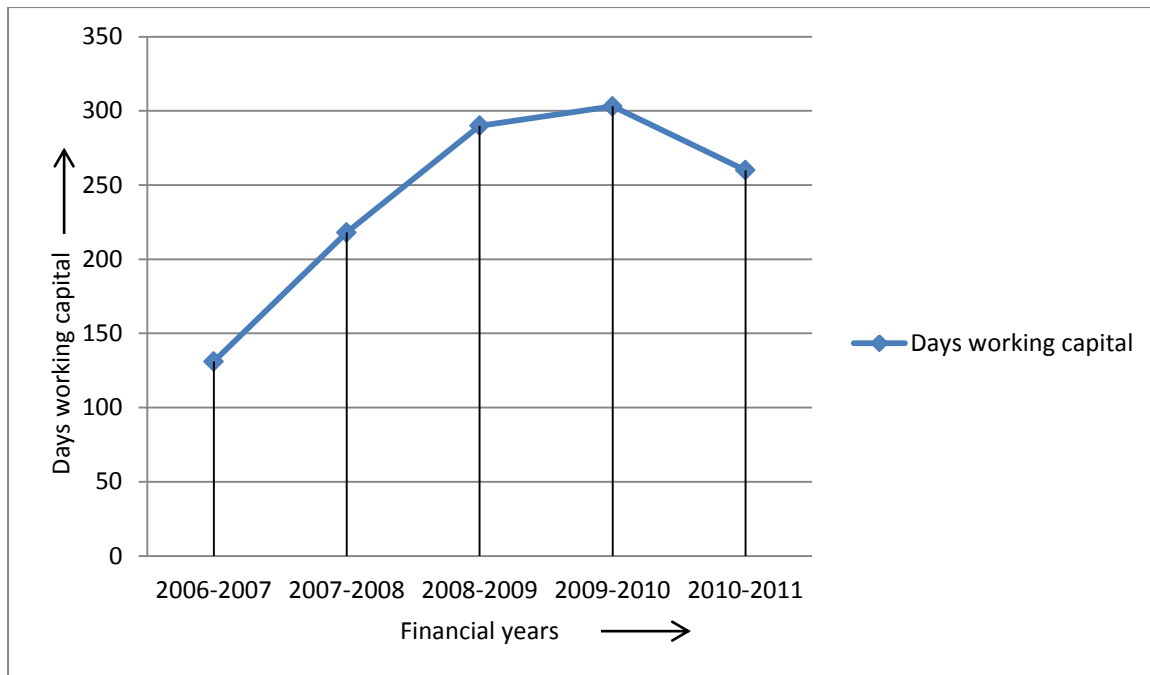


Fig. 4.1.20 Days working capital of IREL from financial year 2006-07 to 2010-11

### 4.1.3 Summary

Working capital of the company was good during the financial year 2006-07 to 2010-11. Financial year 2008-2009 had shown good liquidity position of the company, it decreased after that but the company was having its assets to pay its short term obligations. The fig. 4.1.5 shows the cash ratio graph which was increasing from 0.83 to 1.88, then decreased to 1.64 but in all these financial years the company liquidity position was good as it was having the immediate amount of cash available to pay its short term liabilities.

In all these financial year the company had higher gross profit margin, which stated that the company has maintained its production cost to a limited range and has made a high amount of profit. Financial years of 2006-09 was really good for the company in terms of operating profit margin, but the financial years of 2009-11 had low operating profit margin which was not good for the company. Net profit margin in all these financial year was not good except for the year 2007-2008. So the company has made less profit. The company has earned more on its assets during the financial year 2007-2008, and the rest of the years its assets was not being properly utilized. High ROE on the financial year 2007-2008 indicated that the shareholder is being given more dividends and the rest financial year indicates that the company had invested more by its shareholder.

The equity position of the company was good and the value of debt ratio which was below 0.5 indicates that the company had less debt and no risk to bankruptcy. As the company capitalization ratio was below 0.2 in all these financial years, it reveals that the company was much stronger in financial status.

As the company possessed huge assets in terms of fixed and current, so the turnover made by the company did not put much impact on the fixed asset turnover and total assets turnover. Whereas the inventory turnover is more than 2 which indicated the company was running in good condition. The Days working capital was so less that the company was generating its working capital within a year it gives a positive sign to the company.

#### **4.1.4 Suggestion for improvement**

The operating expense of the company should have been kept to a minimum value so as to make high profit. The company should have tried to make money from its assets, so as to utilize its assets. The company should have tried to decrease its debt so as to make debt-equity ratio to a minimum value. The company should have decreased its capital involvement and long term fund use, so as to make the ratio on return on capital employed and return on long term funds to be more.



## 4.2 HINDUSTAN COPPER LIMITED

### 4.2.1 Introduction

Hindustan Copper Limited (HCL), a public sector enterprise of the Government of India was incorporated on 9<sup>th</sup> November 1967. It has the distinction of being India's only vertically integrated copper producing company encompassing mining, beneficiation, smelting, refining and casting of refined copper metals. HCL's mines and plants are spread across four operating units [25, 26]:

1. Khetri Copper Complex (KCC) at Khetrinagar, Rajasthan
2. Indian Copper Complex (ICC) at Ghatsila, Jharkhand
3. Malanjkhand Copper Project (MCP) at Malanjkhand, Madhya Pradesh
4. Taloja Copper Project (TCP) at Taloja, Maharashtra

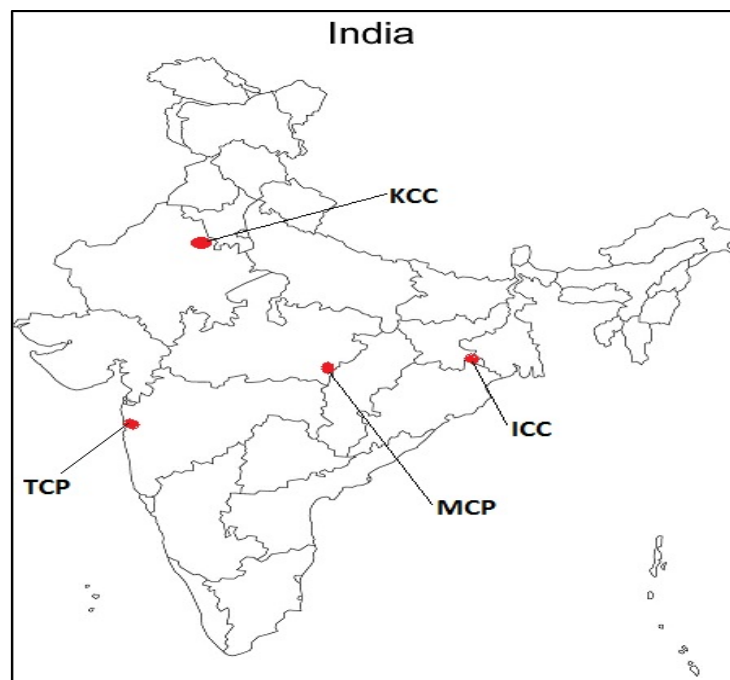


Fig. 4.2 Location of HCL units

Table 4.2.1 Balance Sheet of Hindustan Copper Ltd as at 31<sup>st</sup> Mar'11 (All figures in Rs. Crores) [32].

Particulars	Mar'11	Mar'10	Mar'09	Mar'08	Mar'07
<b>Liabilities</b>					
Share Capital	462.61	462.61	462.61	462.61	977.45
Reserves & Surplus	776.36	659.97	505.29	515.60	-295.71
Net Worth	1,238.97	1,122.58	967.90	978.21	681.74
Secured Loans	0.00	0.00	2.30	0.98	12.50
Unsecured Loans	0.00	0.00	33.73	112.50	203.63
<b>TOTAL LIABILITIES</b>	<b>1,238.97</b>	<b>1,122.58</b>	<b>1,003.93</b>	<b>1,091.69</b>	<b>897.88</b>
<b>Assets</b>					
Gross Block	770.01	760.35	731.36	665.7	667.30
(-) Acc. Depreciation	556.84	540.72	521.66	500.29	491.30
Net Block	213.17	219.63	209.70	165.42	176.00
Capital Work in Progress	459.20	408.89	379.49	371.36	326.69
Investments	86.48	71.92	0.00	0.00	0.00
Inventories	322.66	253.26	259.96	386.12	408.54
Sundry Debtors	65.20	154.75	159.95	50.14	44.44
Cash and Bank	342.26	173.36	299.48	528.84	434.86
Loans and Advances	426.70	327.31	330.39	318.07	336.41
Total Current Assets	1,156.83	908.69	1,049.78	1,283.17	1,224.26
Current Liabilities	276.02	255.73	447.86	447.40	662.37
Provisions	400.69	230.75	187.17	280.86	166.71

Total Current Liabilities	676.71	486.48	635.03	728.26	829.07
NET CURRENT ASSETS	480.12	422.20	414.74	554.91	395.19
<b>TOTAL ASSETS</b>	<b>1,238.97</b>	<b>1,122.63</b>	<b>1,003.93</b>	<b>1091.69</b>	<b>897.88</b>

Table 4.2.2 Profit and loss statement of Hindustan Copper Ltd as at 31<sup>st</sup> Mar'11 (All figures in Rs. Crores) [33].

	Mar'11	Mar'10	Mar'09	Mar'08	Mar'07
<b>INCOME</b>					
Sales Turnover	1,261.48	1,439.14	1,359.75	1,848.77	1,813.75
Excise Duty	110.24	110.98	139.48	246.28	246.29
NET SALES	1,151.24	1,328.16	1,220.27	1,602.49	1,567.46
Other income	71.5	39.24	80.48	50.88	16.37
<b>TOTAL INCOME</b>	<b>1,222.74</b>	<b>1,367.5</b>	<b>1,300.75</b>	<b>1,653.37</b>	<b>1,583.83</b>
<b>EXPENDITURE</b>					
Manufacturing Expenses	259.33	206.81	217.12	226.41	212.83
Material Consumed	48.70	476.35	608.58	654.04	560.94
Personal Expenses	298.02	287.45	214.62	213.48	157.63
Selling Expenses	30.35	49.86	55.86	71.36	81.29
Administrative Expenses	151.33	45.39	129.56	118.81	93.53
<b>TOTAL EXPENDITURE</b>	<b>787.74</b>	<b>1,065.86</b>	<b>1,225.75</b>	<b>1,284.11</b>	<b>1,106.23</b>

Operating Profit	363.50	262.30	-5.48	318.38	461.23
EBITDA	435.00	301.64	75.00	369.26	477.60
Depreciation	20.84	17.89	18.82	15.84	26.99
Other Write-offs	76.43	63.15	54.90	66.05	62.47
EBIT	337.73	220.60	1.28	287.37	388.15
Interest	2.42	3.49	6.81	28.13	34.97
EBT	335.31	217.11	-5.53	259.24	353.18
Taxes	111.11	61.16	15.79	56.04	17.88
Profit and Loss for the Year	224.19	155.95	-21.33	203.20	335.29
Non Recurring items	-2.85	-4.17	-15.98	38.65	-25.18
Other Non- Cash Adjustments	2.76	2.90	27.00	4.61	3.83
Other Adjustments	0.00	0.00	0.00	0.00	0.00
<b>Reported PAT</b>	<b>224.10</b>	<b>154.68</b>	<b>-10.31</b>	<b>246.46</b>	<b>313.94</b>

#### 4.2.2 Ratio analysis: financial year 2006-07 to 2010-11

Table 4.3.3: Analysis of Financial Ratios of HCL from financial year 2006-07 to 2010-11

<b>Financial ratios</b>	<b>2006-2007</b>	<b>2007-2008</b>	<b>2008-2009</b>	<b>2009-2010</b>	<b>2010-2011</b>	<b>Remarks</b>
Working capital (in Rs crores)	395.2	555	414.75	422.21	480.12	Good
Current ratio	1.47	1.76	1.65	1.87	1.71	Not desirable
Quick ratio	0.98	1.23	1.24	1.35	1.23	Safe
Cash ratio	0.52	0.73	0.47	0.36	0.51	Satisfactory
Gross profit margin (in %)	50.63	45.05	32.33	48.56	73.24	Good

Operating profit margin (in %)	29.42	19.87	-0.4	19.75	31.57	Satisfactory
Net profit margin (in %)	21.40	12.68	-1.7	11.74	19.47	Not desirable
Return on assets (in %)	19.94	11.45	-1.23	9.6	12.72	Not desirable
Return on equity (in %)	52.54	24.5	-2.2	15	19	Satisfactory
Return on investments (in %)	62.06	32.25	0.01	20	27.45	Good
Return on capital employed (in %)	43.4	29	0	20.75	28.60	Good
Return on long term funds (in %)	24.76	17.93	.11	16.61	29.34	Satisfactory
Debt ratio	0.6	0.46	0.41	0.3	0.35	Good
Debt-Equity ratio	1.51	0.86	0.69	0.43	0.55	Satisfactory
Capitalization ratio	0.23	0.10	0.03	0	0	Less debt the company has
Interest coverage ratio	11.1	10.22	0.2	63.21	139.56	Considerable
Fixed-Asset turnover ratio	3.12	2.98	2.07	1.89	1.52	Not proper use of fixed assets
Total assets turnover ratio	0.93	0.90	0.70	0.82	0.65	Not desirable

Inventory turnover ratio	1.768	2.216	2.55	2.66	1.07	Satisfactory
Days working capital	107	108	145	115	143	Good

The data obtained from Table 4.2.3 is plotted in Fig. 4.2.1 to Fig. 4.2.20 as shown below:

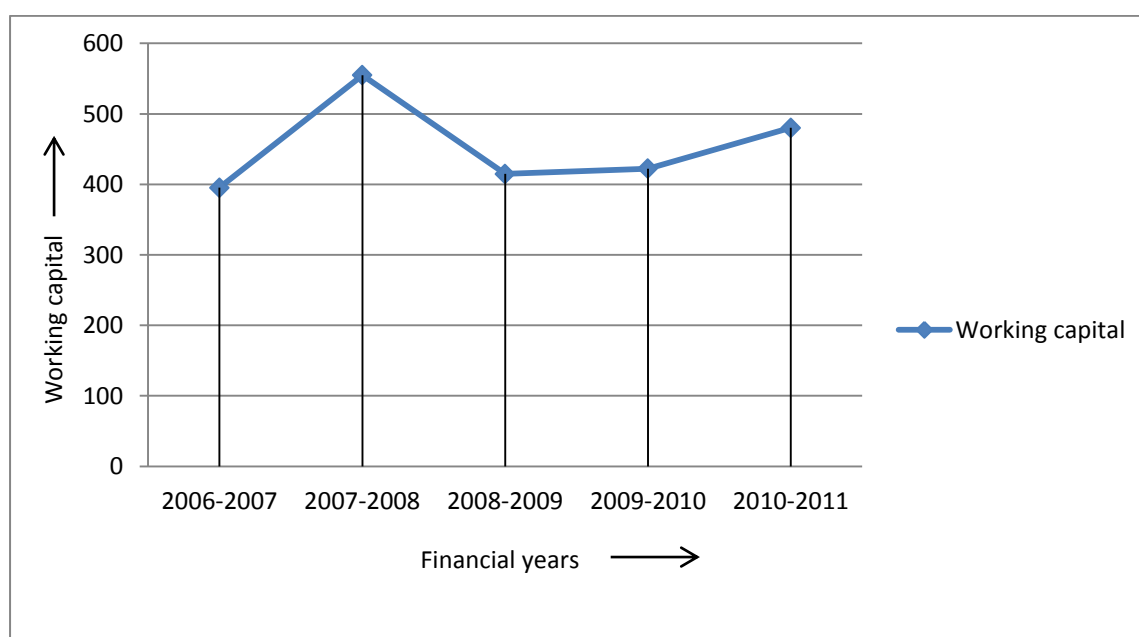


Fig. 4.2.1 Working capital of HCL from financial year 2006-07 to 2010-11

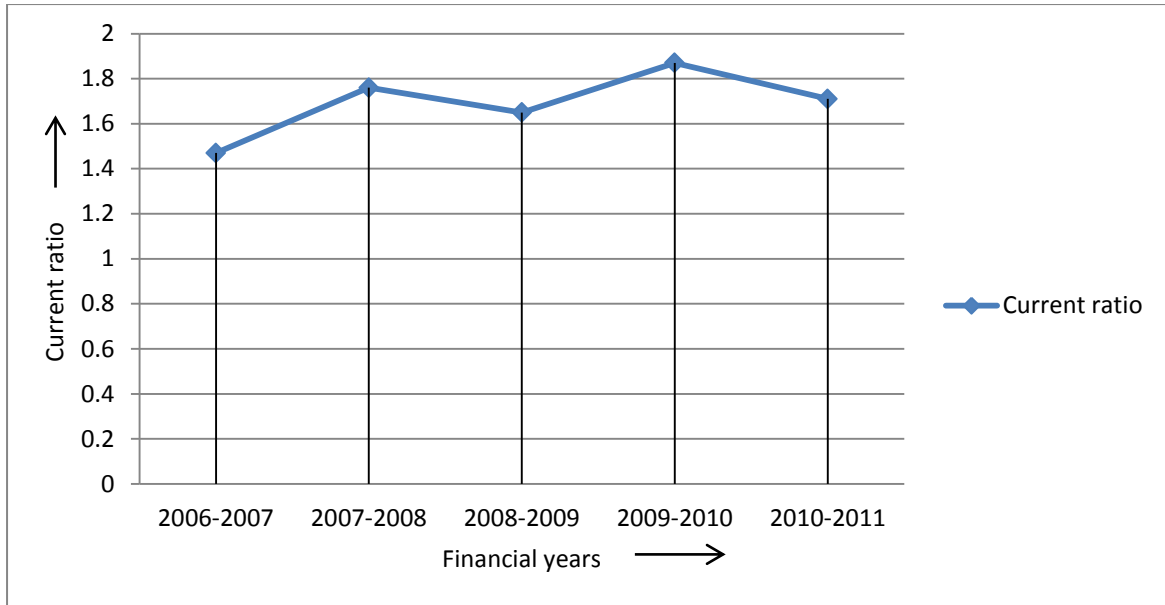


Fig. 4.2.2 Current ratio of HCL from financial year 2006-07 to 2010-11

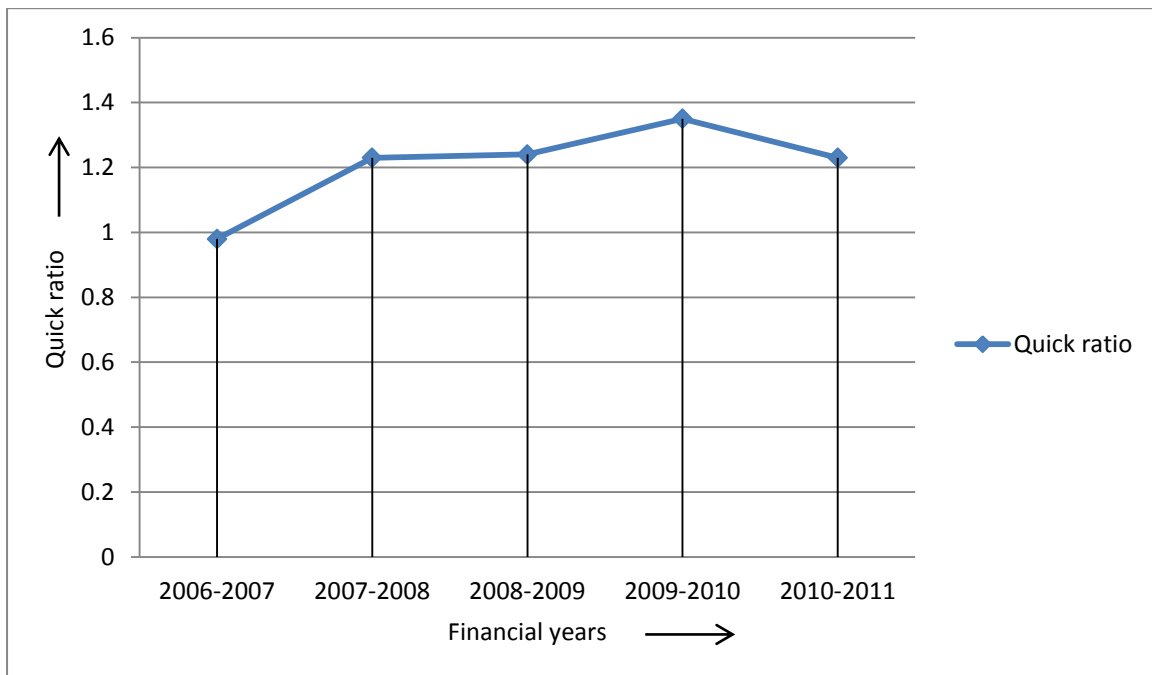


Fig. 4.2.3 Quick ratio of HCL from financial year 2006-07 to 2010-11

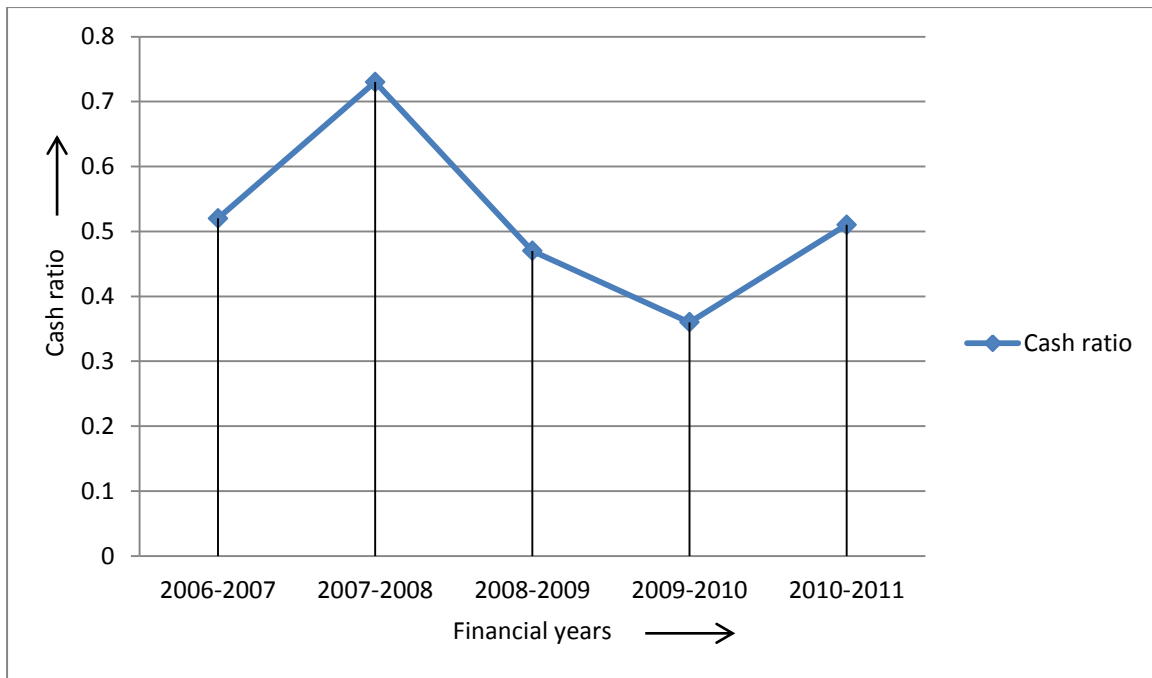


Fig. 4.2.4 Cash ratio of HCL from financial year 2006-07 to 2010-11

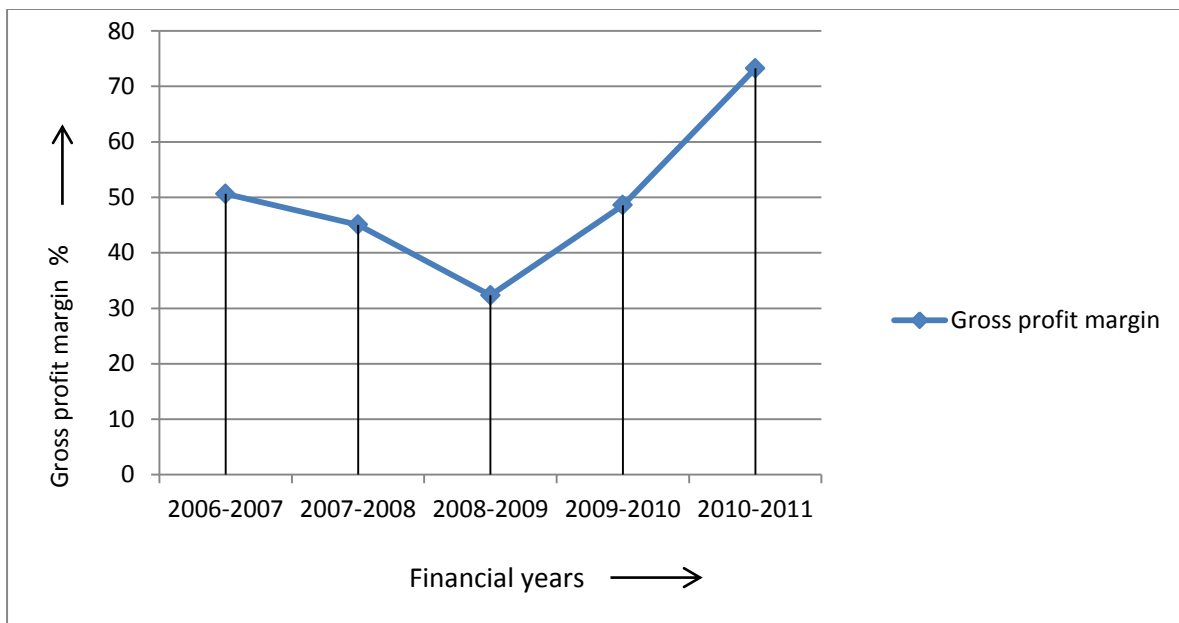


Fig. 4.2.5 Gross profit margin in % of HCL from financial year 2006-07 to 2010-11



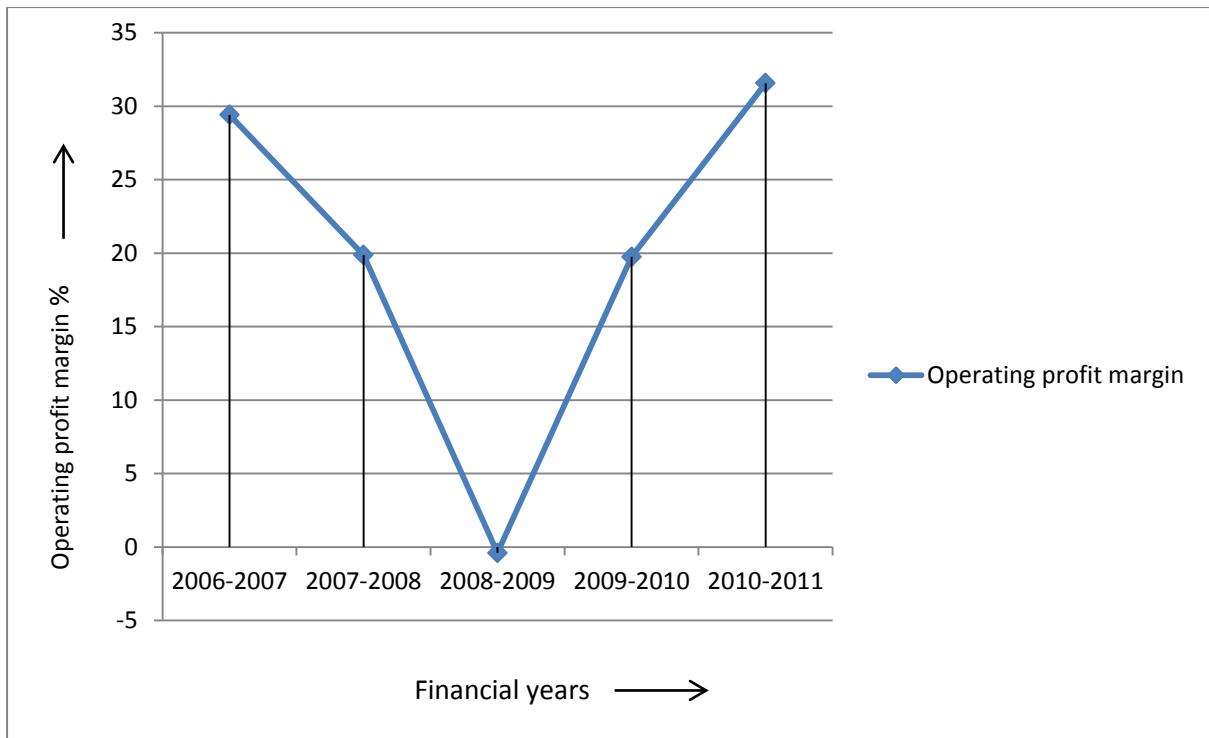


Fig. 4.2.6 Operating profit margin in % of HCL from financial year 2006-07 to 2010-11

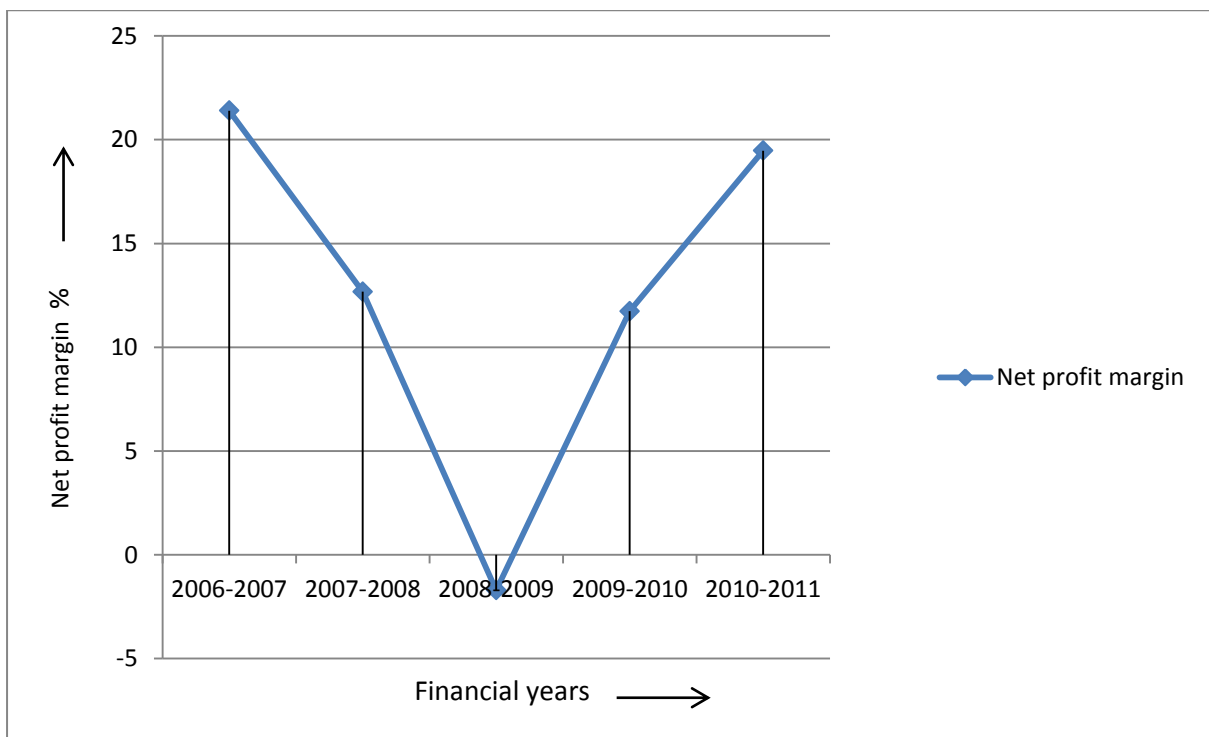


Fig. 4.2.7 Net profit margin in % of HCL from financial year 2006-07 to 2010-11

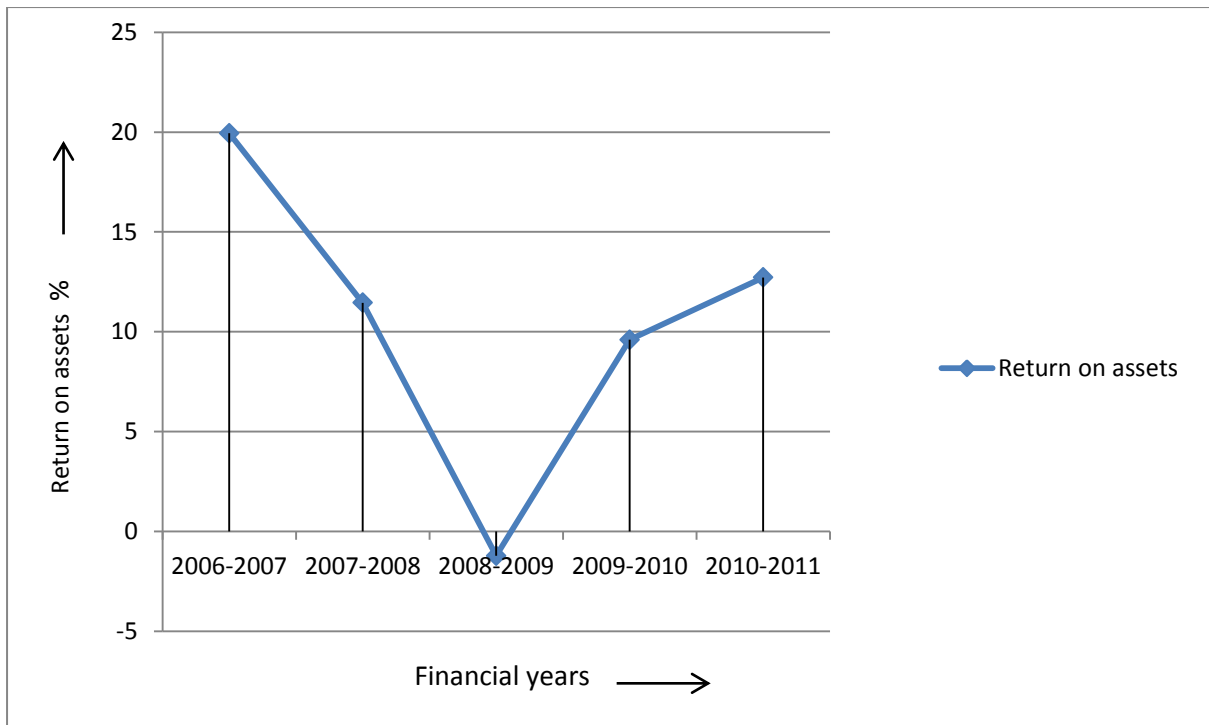


Fig. 4.2.8 Return on assets in % of HCL from financial year 2006-07 to 2010-11

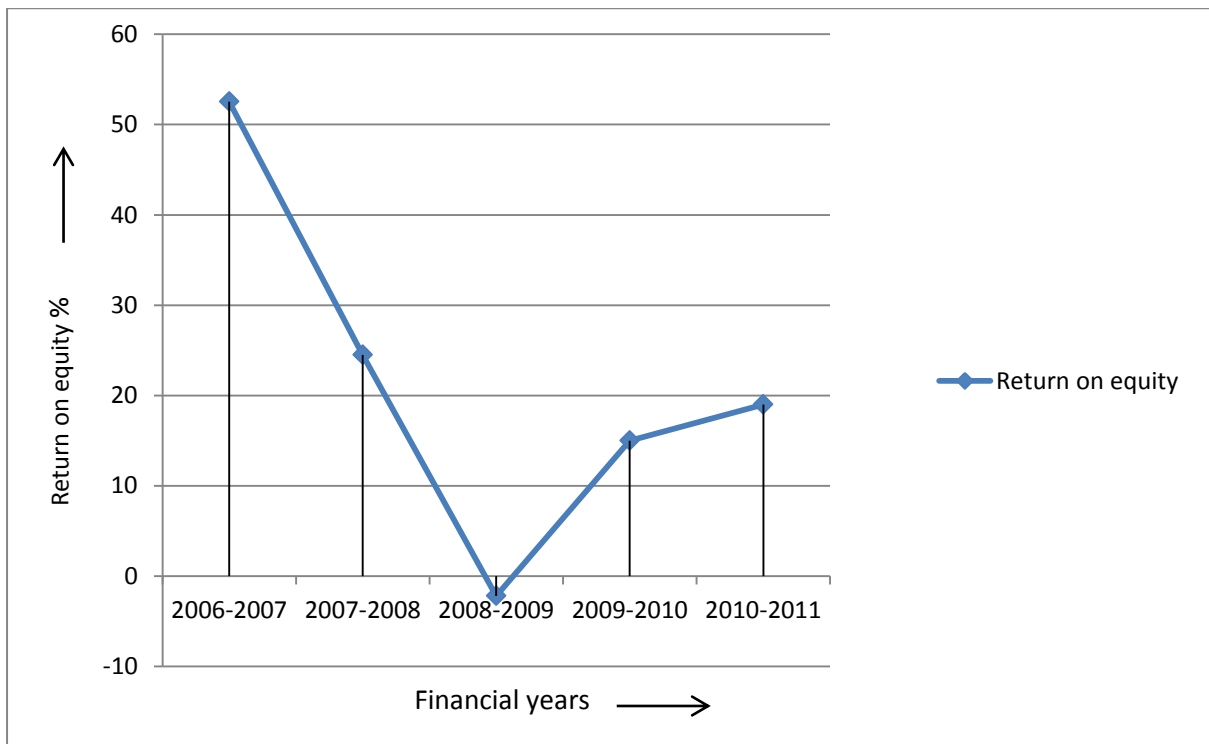


Fig. 4.2.9 Return on equity in % of HCL from financial year 2006-07 to 2010-11

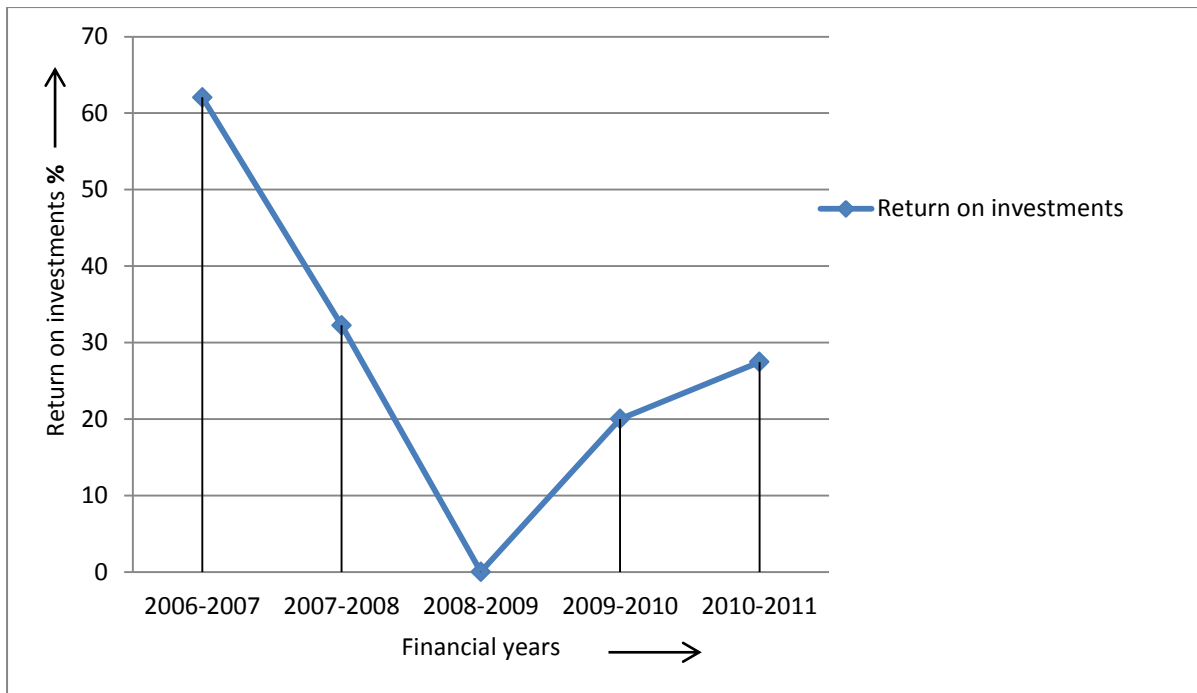


Fig. 4.2.10 Return on investments in % of HCL from financial year 2006-07 to 2010-11

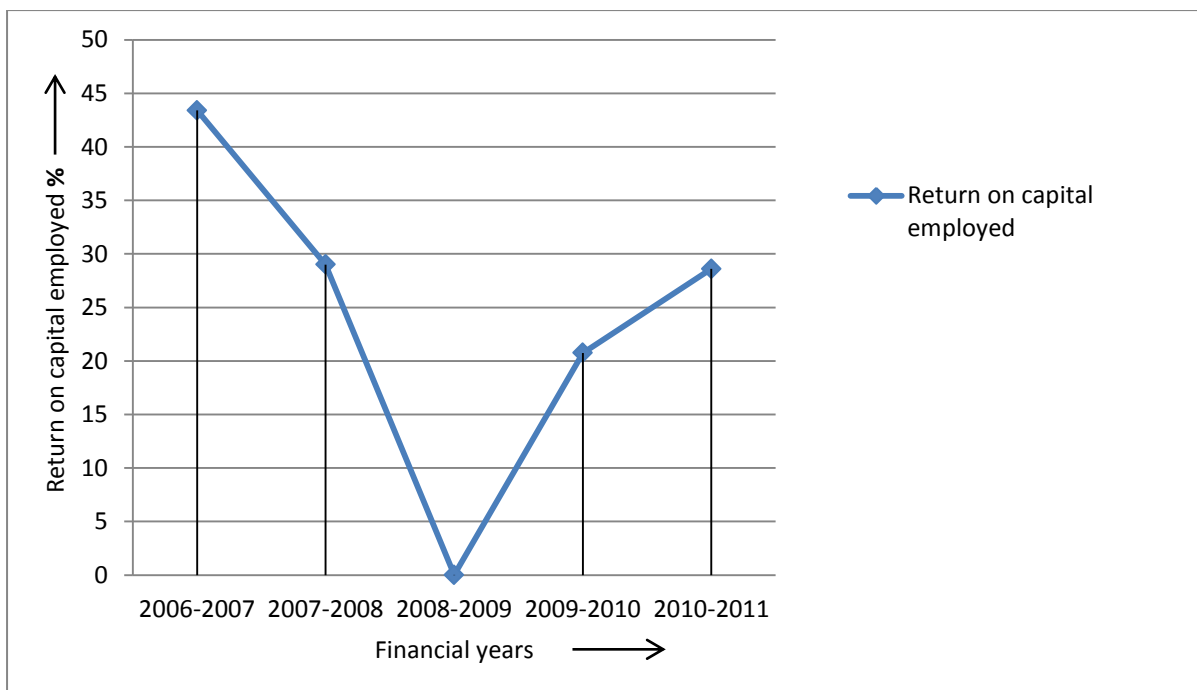


Fig. 4.2.11 Return on capital employed in % of HCL from financial year 2006-07 to 2010-11

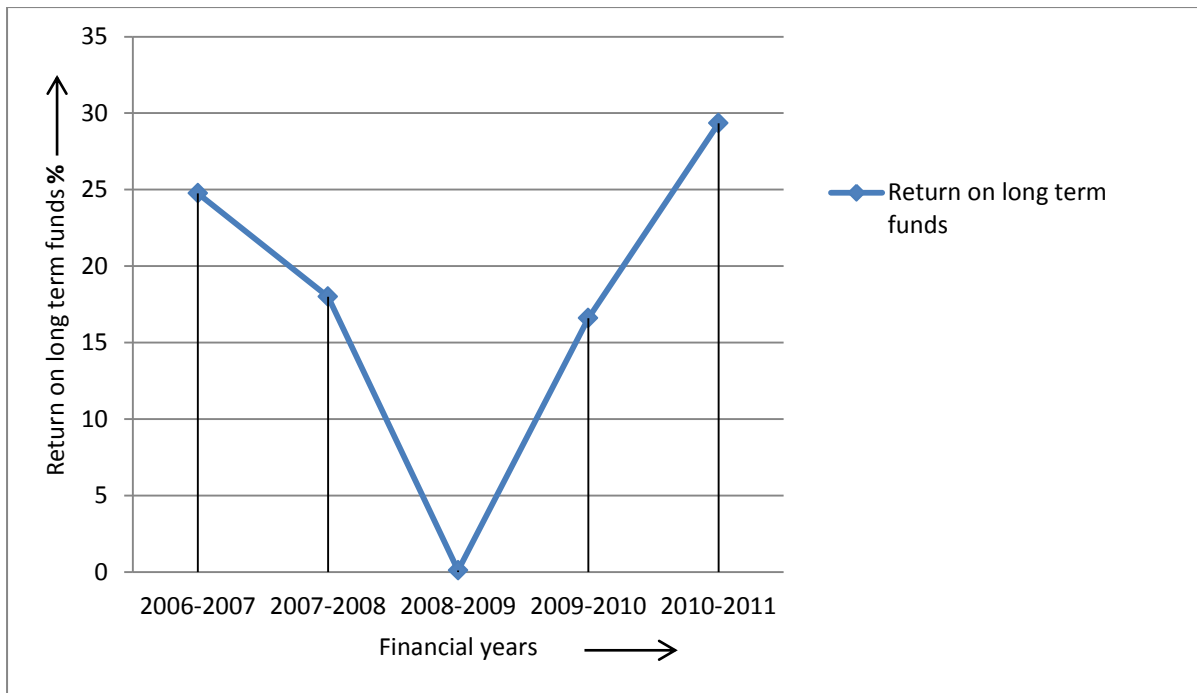


Fig. 4.2.12 Return on long term funds % of HCL from financial year 2006-07 to 2010-11

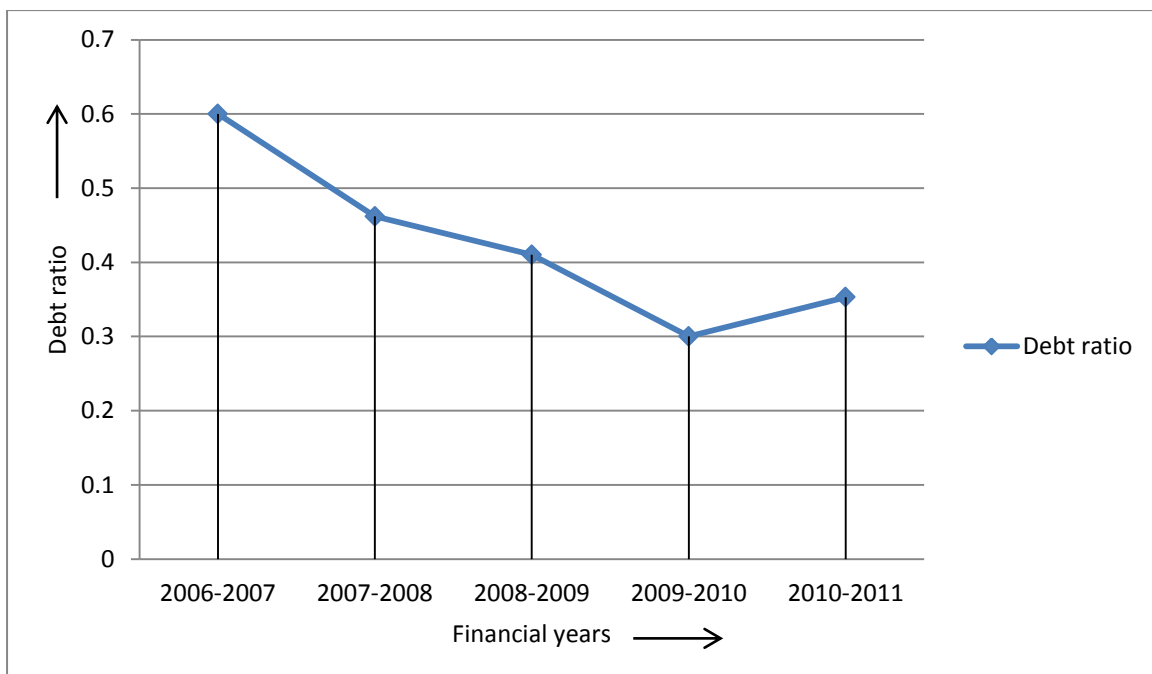


Fig. 4.2.13 Debt ratio of HCL from financial year 2006-07 to 2010-11

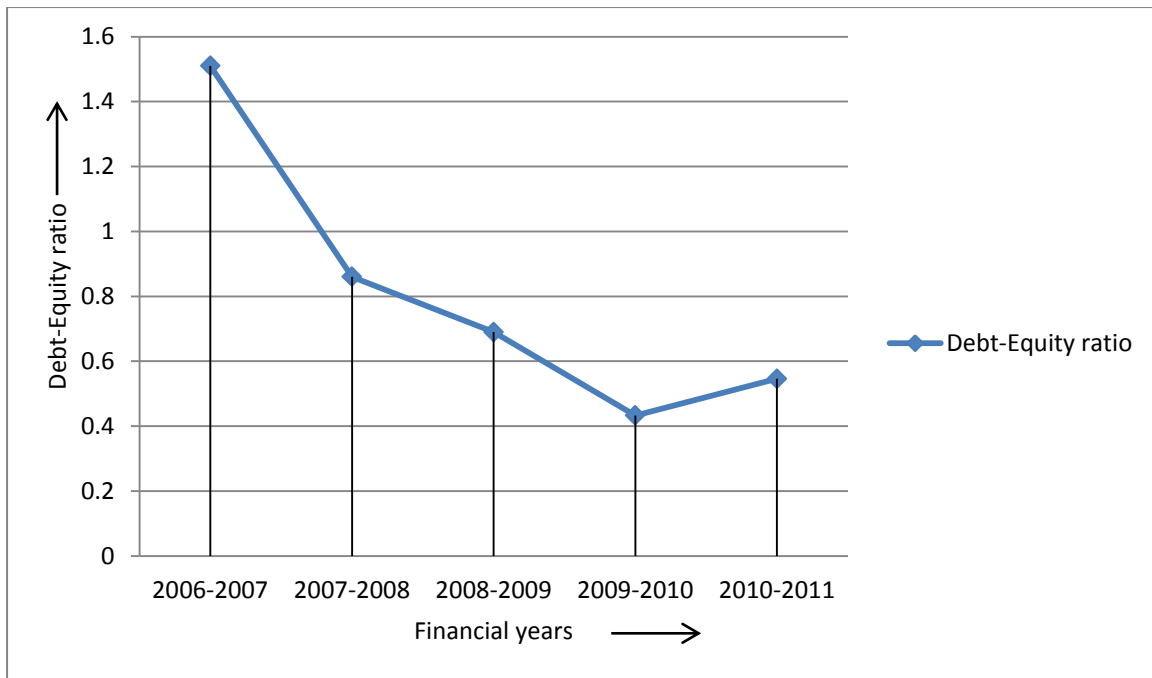


Fig. 4.2.14 Debt-Equity ratio of HCL from financial year 2006-07 to 2010-11

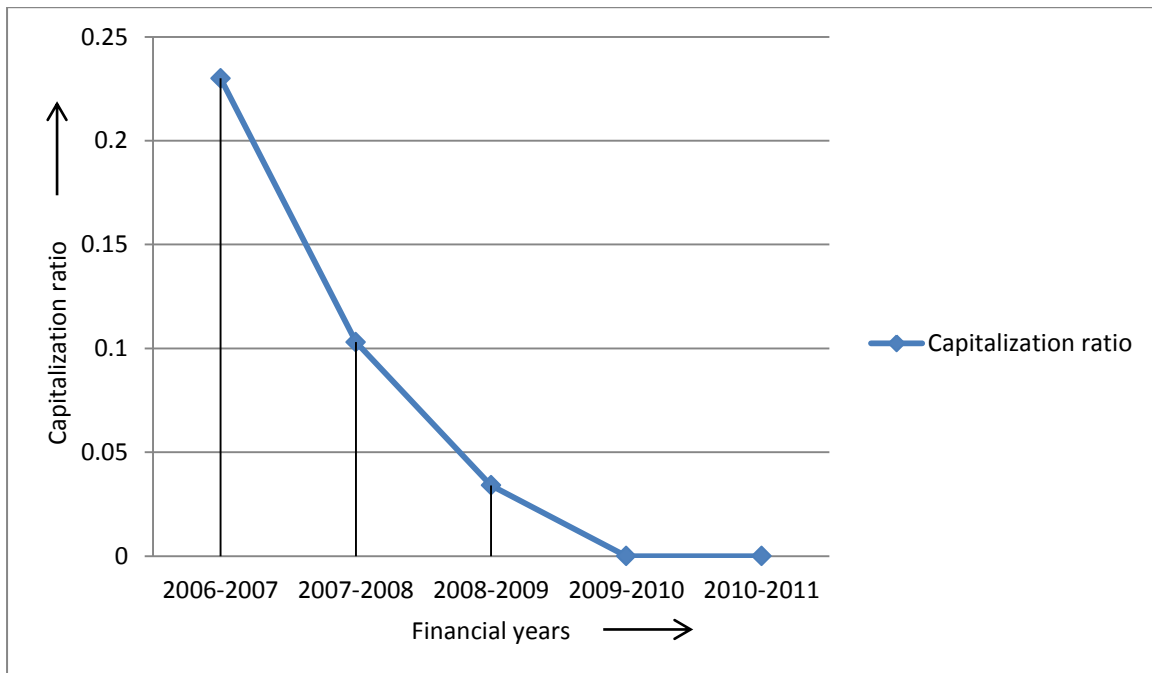


Fig. 4.2.15 Capitalization ratio of HCL from financial year 2006-07 to 2010-11

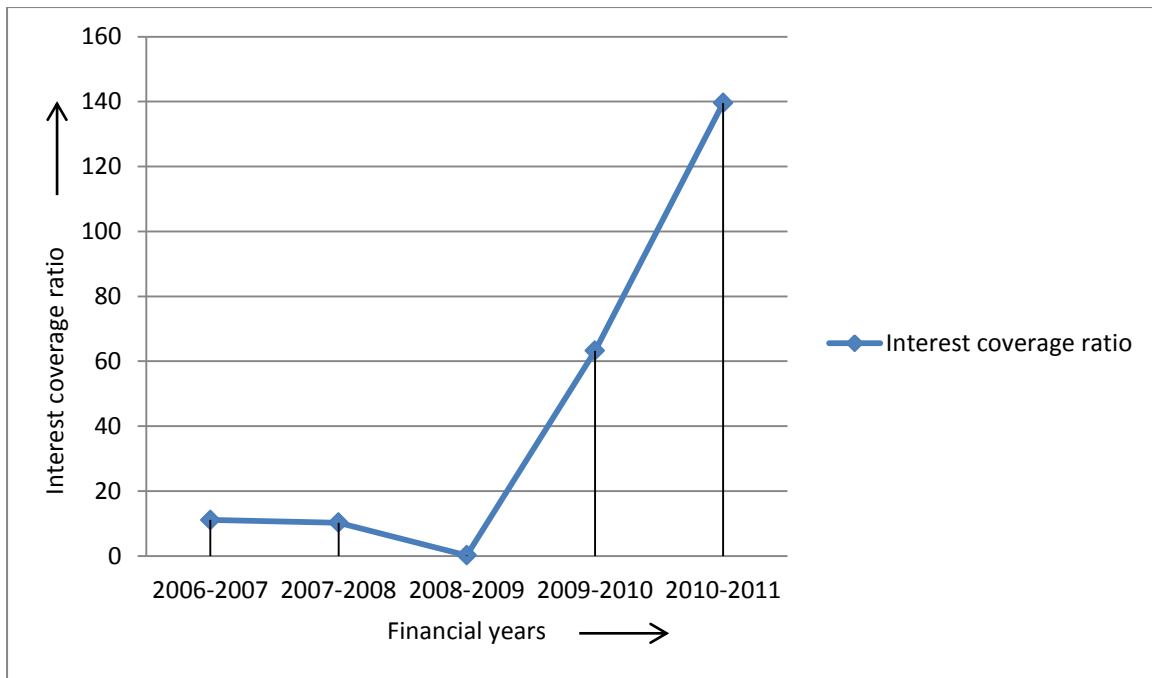


Fig. 4.2.16 Interest coverage ratio of HCL from financial year 2006-07 to 2010-11

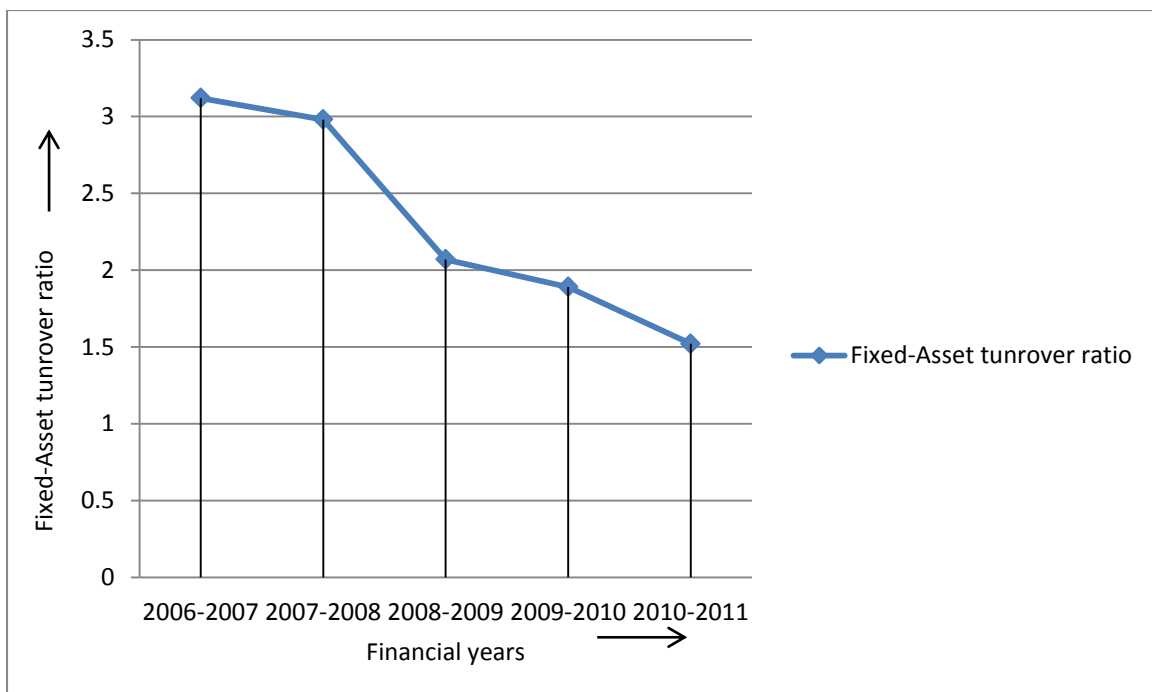


Fig. 4.2.17 Fixed-Asset turnover ratio of HCL from financial year 2006-07 to 2010-11

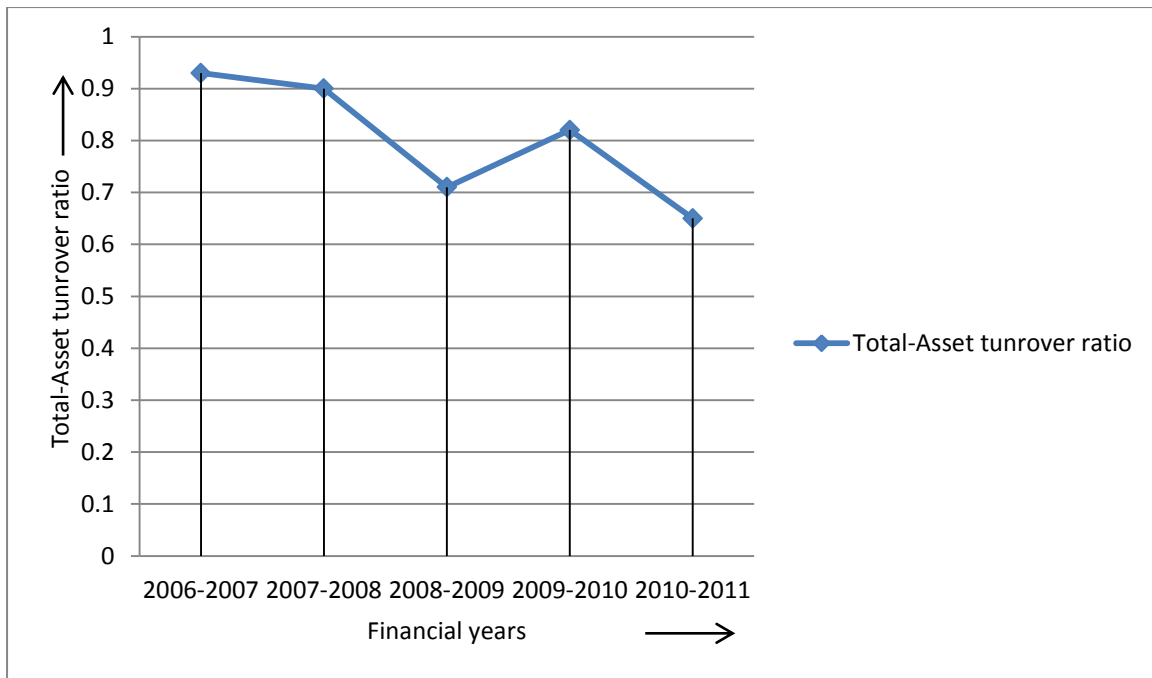


Fig. 4.2.18 Total-Asset turnover ratio of HCL from financial year 2006-07 to 2010-11

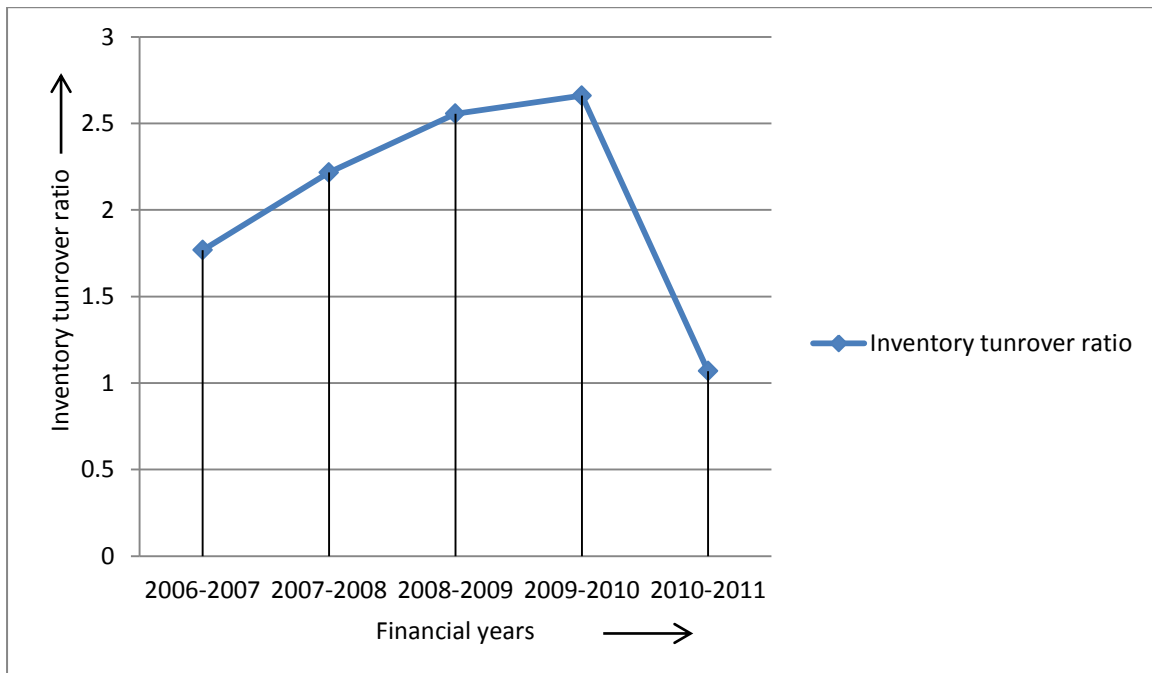


Fig. 4.2.19 Inventory turnover ratio of HCL from financial year 2006-07 to 2010-11

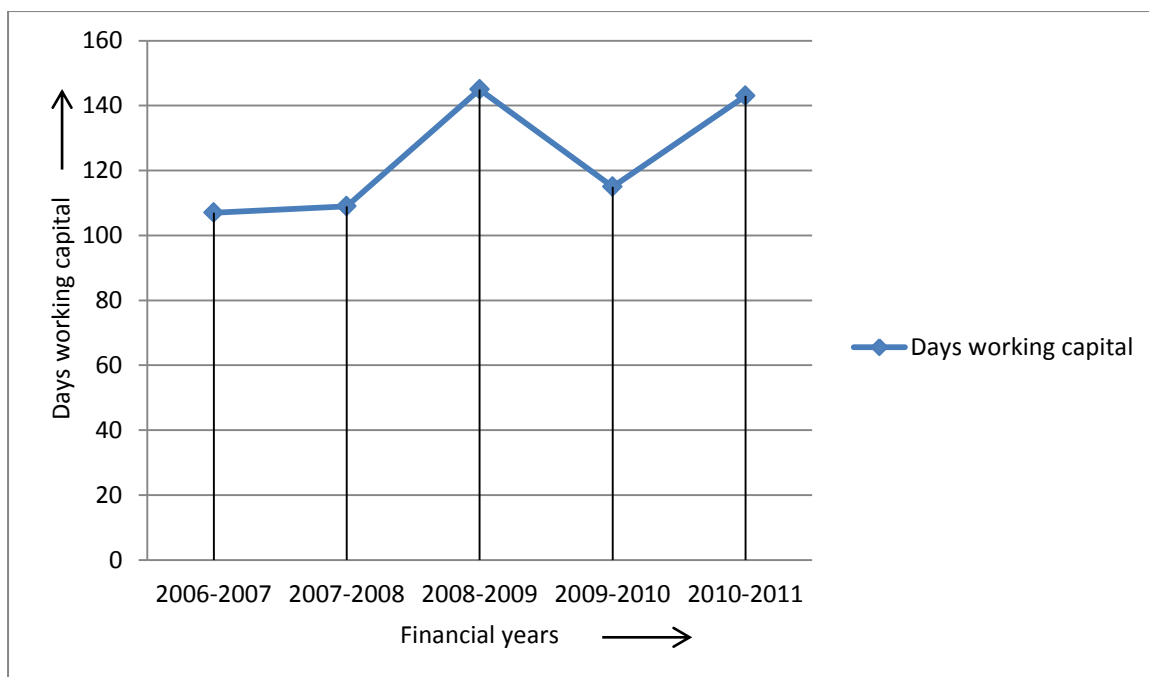


Fig. 4.2.20 Days working capital of HCL from financial year 2006-07 to 2010-11

### 4.2.3 Summary

In all these financial years the liquidity position of the company was significant. The cash ratio graph show the financial year 2009-2010 has value of 0.36 which indicates that the immediate amount of cash available to pay its short term liabilities was too low.

In all these financial year the company had higher gross profit margin, except for the financial year 2008-2009. Financial year of 2010-2011 and 2006-2007 was good for the company in terms of operating profit margin, but the rest financial years has low operating profit margin which is not good for the company. Net profit margin in all these financial year was not good except for the year 2006-2007, so the company is making less profit.

The company has made losses on its assets during the financial year 2008-2009, and the rest of the years its assets was somehow utilized. Similarly ROE on the financial year 2008-2009 indicates that the shareholder's fund was not utilised properly.

The equity position of the company was excellent and the value indicates that the company had less debt and no risk to bankruptcy. As the company capitalization ratio was below 0.1 in all these financial years, it revealed that the company was much stronger in financial status.

As the company possessed huge assets in terms of fixed and current, so the turnover made by the company does not put much impact on the fixed asset turnover and total assets turnover.



Whereas the inventory turnover is more than 2 which indicates the company was running in good condition. The Days working capital was so less, that the company was generating its working capital within a year and it gave a positive sign to the company.

#### **4.2.4 Suggestion for improvement**

The working capital should have been increased to a greater value, to meet its short term obligations. The company should have paid some of its current liabilities so as to make current ratio above 2. It should have generated more profit so as to make operating profit and net profit margin to a certain amount. The assets of the company must have properly utilised to generate more funds.

## 4.3 COAL INDIA LIMITED

### 4.3.1 Introduction

Coal India Limited (CIL) is an Indian state-controlled coal mining company headquartered in Kolkata and the largest coal producing company in the world. Operating through 81 mining areas CIL is an apex body with 7 wholly owned coal producing subsidiaries and 1 mine planning and Consultancy Company spread over 8 provincial states of India. CIL also fully owns a mining company in Mozambique christened as 'Coal India Africana Limitada'. CIL having fulfilled the financial and other prerequisites was granted the Maharatna recognition in April 2011. Coal India's major consumers are Power and Steel sectors. Others include Cement, Fertiliser, Brick Kilns, and small scale industries. The Mission of Coal India Limited is to produce the planned quantity of coal, efficiently and economically with due regard to safety, conservation and quality. The Mission of Coal India Limited is to produce the planned quantity of coal, efficiently and economically with due regard to safety, conservation and quality [27].



Fig. 4.3 Location of subsidiaries of CIL [34]

Table 4.3 Subsidiaries of CIL as per Fig. 4.3

Sl. No. as in Fig. 4.3	Coalfield	Subsidiary
1	Singrauli	Northern Coalfields Limited (NCL)
2	Karanpura & Bokaro	Central Coalfields Limited (CCL)
3	Jharia	Bharat Coking Coal Limited (BCCL)
4	Assam & Meghalaya	North Eastern Coalfields (NEC)
5	Raniganj	Eastern Coalfields Limited (ECL)
6	IB & Talcher	Mahanadi Coalfields Limited (MCL)
7	Central India	South Eastern Coalfields Limited (SECL)
8	Pench & kanhan	Western Coalfields Limited (WCL)
9	Chanda & Wardha	Western Coalfields Limited (WCL)

Table 4.3.1 Balance Sheet of Coal India Ltd as at 31<sup>st</sup> Mar'11 (All figures in Rs. Crores) [35].

Particulars	Mar'11	Mar'10	Mar'09	Mar'08	Mar'07
<b>Liabilities</b>					
Share Capital	6,316.36	6,316.36	6,316.36	6,316.36	6,316.36
Reserves & Surplus	13,121.02	10,744.36	8,920.86	7,052.93	6,338.28
Net Worth	19,437.39	17,060.72	15,237.22	13,369.30	12,654.64
Secured Loans	0.00	0.00	0.00	0.00	0.00
Unsecured Loans	1,370.43	1,464.30	1,786.62	1,510.83	1,646.10
<b>TOTAL LIABILITIES</b>	<b>20,807.82</b>	<b>18,525.02</b>	<b>17,023.85</b>	<b>14,880.13</b>	<b>14,300.74</b>
<b>Assets</b>					
Gross Block	387.46	376.63	368.92	355.30	351.88
(-) Acc. Depreciation	289.13	283.23	273.95	266.60	258.73
Net Block	98.33	93.40	94.97	88.70	93.15
Capital Work in Progress	55.67	17.84	5.99	1.07	0.08

Investments	6,319.17	6,316.57	6,316.36	6,316.36	6,316.36
Inventories	35.70	26.59	19.52	10.44	23.67
Sundry Debtors	0.00	0.00	0.02	0.00	0.01
Cash and Bank	11,659.52	9,133.36	6,646.76	4,663.96	3,728.98
Loans and Advances	9,484.74	8,380.19	9,354.33	8,635.55	8,878.52
Total Current Assets	21,179.95	17,540.14	15,836.64	13,309.95	12,631.20
Current Liabilities	5,837.37	4,763.78	4,521.26	4,363.30	4,517.42
Provisions	1,007.95	679.14	708.85	472.65	222.64
Total Current Liabilities	6,845.31	5,442.93	5,230.11	4,835.95	4,740.06
NET CURRENT ASSETS	14,334.64	12,097.21	10,606.53	8,474.00	7,891.14
<b>TOTAL ASSETS</b>	<b>20,807.82</b>	<b>18,525.02</b>	<b>17,023.85</b>	<b>14,880.13</b>	<b>14,300.74</b>

Table 4.3.2 Profit and loss statement of Coal India Ltd as at 31<sup>st</sup> Mar'11 (All figures in Rs. Crores) [36]

	Mar'11	Mar'10	Mar'09	Mar'08	Mar'07
<b>INCOME</b>					
Sales Turnover	468.81	449.21	318.89	231.01	281.73
Excise Duty	7.50	1.07	0.84	1.20	1.18
NET SALES	461.31	448.14	318.05	271.81	280.54
Other income	5,072.88	4,301.01	4,211.16	3,172.38	3,248.64
<b>TOTAL INCOME</b>	<b>5,534.19</b>	<b>4,749.15</b>	<b>4,529.21</b>	<b>3,444.19</b>	<b>3,529.18</b>

<b>EXPENDITURE</b>					
Manufacturing Expenses	8.62	35.60	29.69	30.50	28.17
Material Consumed	0.03	-0.06	-0.06	20.92	14.09
Personal Expenses	237.71	240.91	282.10	164.00	130.31
Selling Expenses	136.06	108.21	72.26	98.10	114.32
Administrative Expenses	167.50	109.20	86.76	100.04	54.99
<b>TOTAL EXPENDITURE</b>	<b>549.91</b>	<b>493.31</b>	<b>470.12</b>	<b>413.56</b>	<b>341.88</b>
Operating Profit	-88.60	-45.17	-152.07	-141.75	-61.33
EBITDA	4,984.27	4,255.84	4,122.09	3,030.63	3,187.30
Depreciation	5.57	8.99	6.17	6.50	8.45
EBIT	4,978.70	4,246.85	4,115.92	3,042.12	3,178.85
Interest	222.89	386.46	475.30	448.30	344.64
EBT	4,755.81	3,860.39	3,640.62	2,575.82	2,834.21
Taxes	190.00	200.00	162.85	120.81	30.30
Profit and Loss for the Year	4,565.81	3,660.39	3,640.62	2,455.01	2,803.91
Non Recurring items	1.87	4.87	5.72	59.55	9.82
Other Non- Cash adjustments	165.72	114.65	-192.35	-60.77	7.56
Other adjustments	-9.84	0.00	4.24	0.00	0.00
<b>Reported PAT</b>	<b>4,723.56</b>	<b>3,779.92</b>	<b>3,295.38</b>	<b>2,453.80</b>	<b>2,821.29</b>

### 4.3.2 Ratio analysis: financial year 2006-07 to 2010-11

Table 4.3.3: Analysis of Financial Ratios of CIL from financial year 2006-07 to 2010-11

<b>Financial ratios</b>	<b>2006-2007</b>	<b>2007-2008</b>	<b>2008-2009</b>	<b>2009-2010</b>	<b>2010-2011</b>	<b>Remarks</b>
Working capital (in Rs crores)	7891.14	8574.0	10606.53	12097.21	14334.64	Good
Current ratio	2.66	2.75	3.03	3.22	3.09	Good
Quick ratio	2.66	2.75	3.02	3.21	3.08	Good
Cash ratio	0.78	0.96	1.27	1.68	1.70	Good
Gross profit margin (in %)	84.93	81.08	90.51	92.07	98.12	Good
Operating profit margin (in %)	-21.86	-52.15	-47.72	-10.08	-19.20	Not desirable
Net profit margin (in %)	1005.66	902.76	1034.17	843.46	1023.94	Good
Return on assets (in %)	15.16	12.66	15.70	16.35	18.30	Satisfactory
Return on equity (in %)	24	18.8	23	23.4	26	Good
Return on investments (in %)	27.84	26.11	30.13	27.16	26.76	Good
Return on capital employed (in %)	22.6	20.85	25.8	23.9	25.31	Satisfactory
Return on long term funds (in %)	1133	1119.2	1291.67	947.66	1076.25	Satisfactory
Debt ratio	0.34	0.32	0.32	0.29	0.30	Good

Debt-Equity ratio	0.51	0.47	0.46	0.40	0.42	Good
Capitalization ratio	0.12	0.10	0.10	0.08	0.06	Good
Interest coverage ratio	11.1	10.22	0.2	63.21	139.56	Satisfactory
Fixed-Asset turnover ratio	0.04	0.04	0.05	0.07	0.07	Not desirable
Total assets turnover ratio	0.015	0.014	0.015	0.019	0.018	Worse
Inventory turnover ratio	1.93	3.02	1.98	1.54	0.28	Good
Days working capital	9094	11055	10985	9246	10457	Not good

The data obtained from Table 4.3.3 is plotted in Fig. 4.3.1 to Fig. 4.3.20 as shown below:

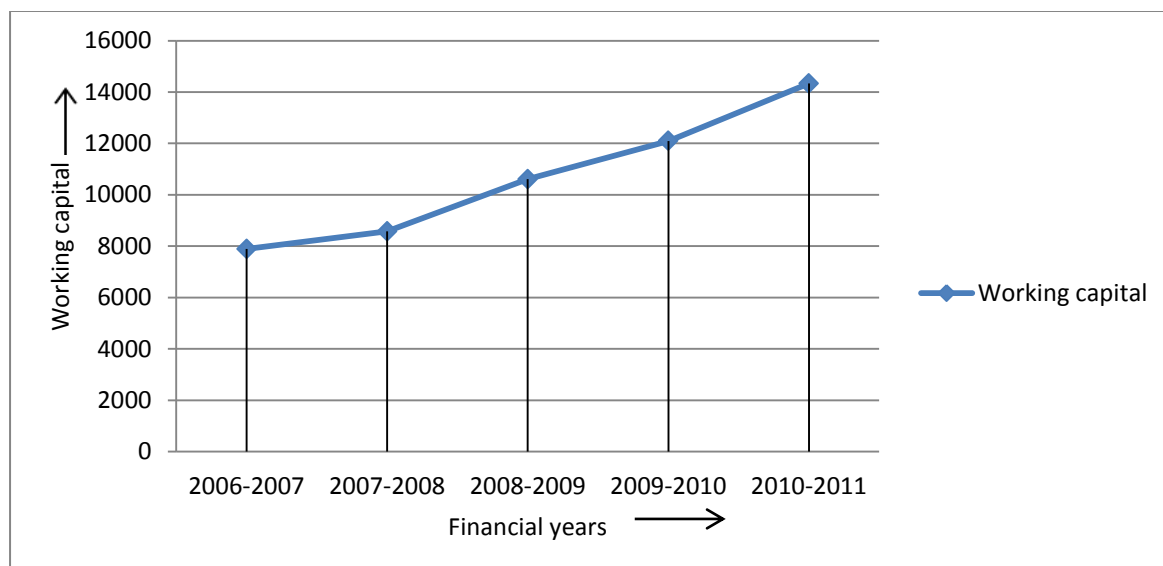


Fig. 4.3.1 Working capital of CIL from financial year 2006-07 to 2010-11

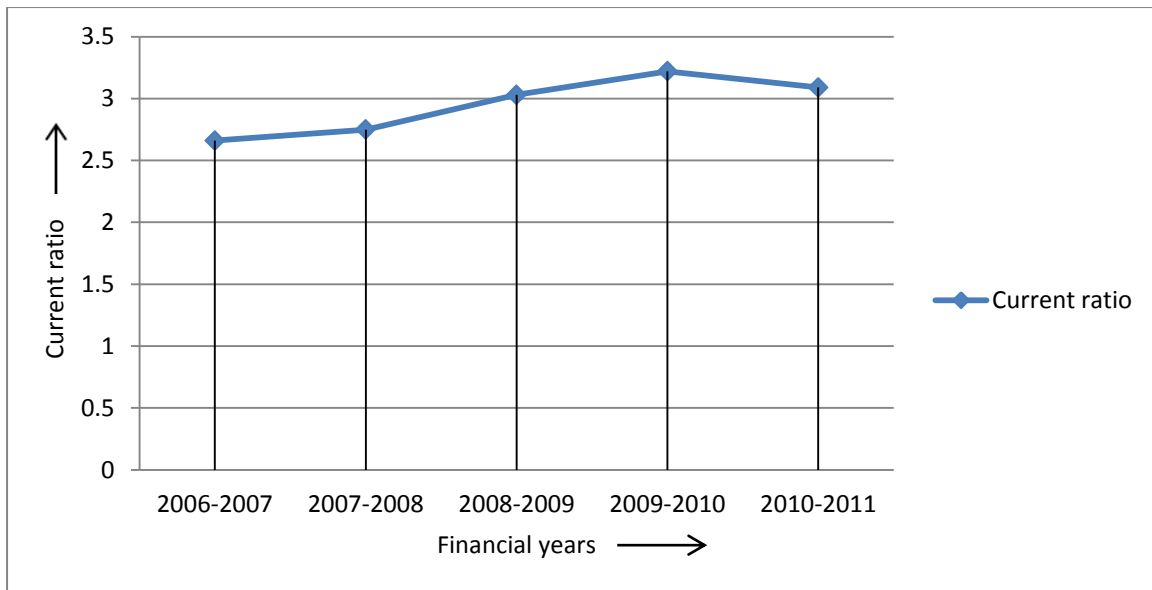


Fig. 4.3.2 Current ratio of CIL from financial year 2006-07 to 2010-11

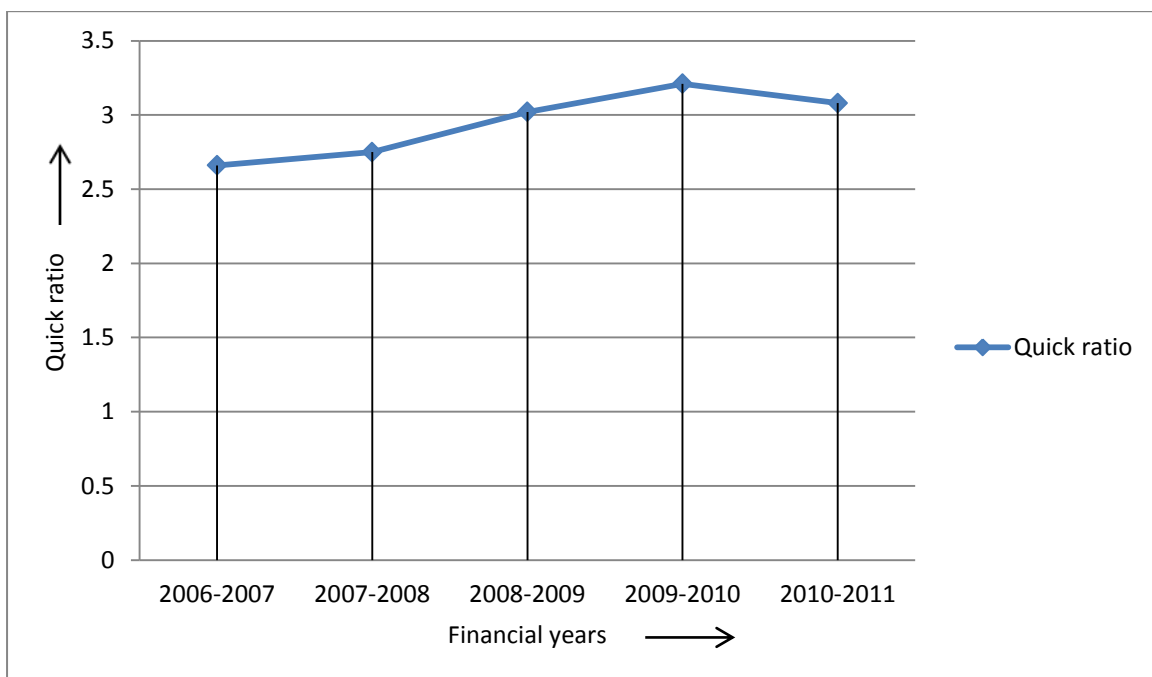


Fig. 4.3.3 Quick ratio of CIL from financial year 2006-07 to 2010-11



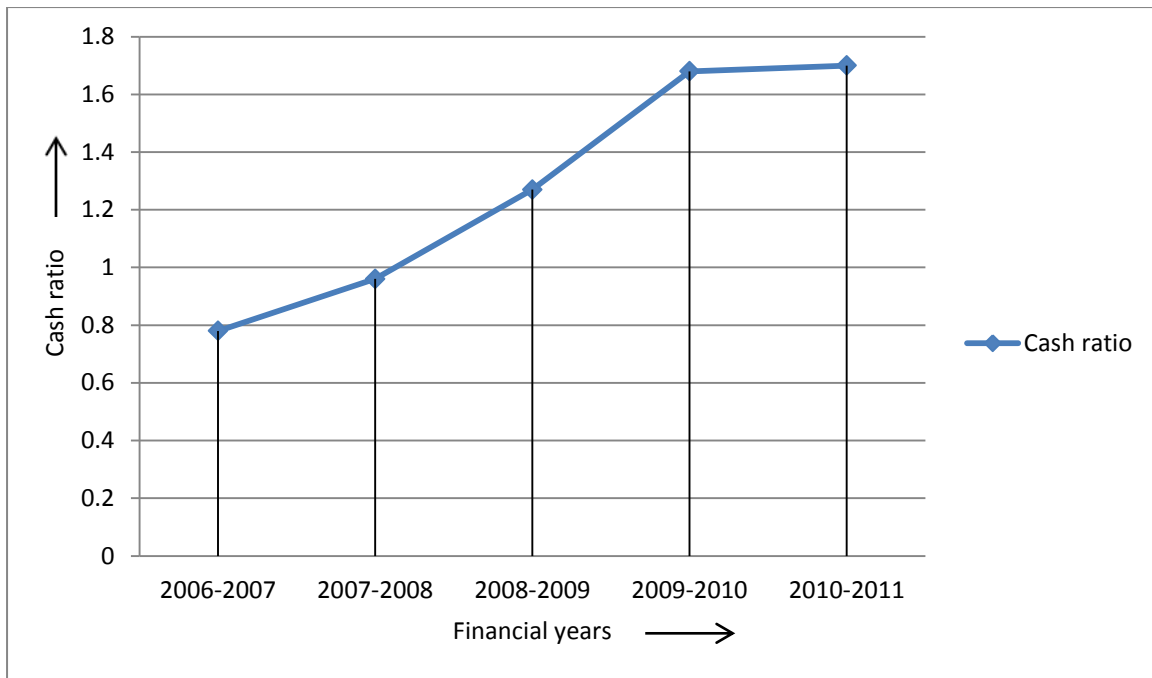


Fig. 4.3.4 Cash ratio of CIL from financial year 2006-07 to 2010-11

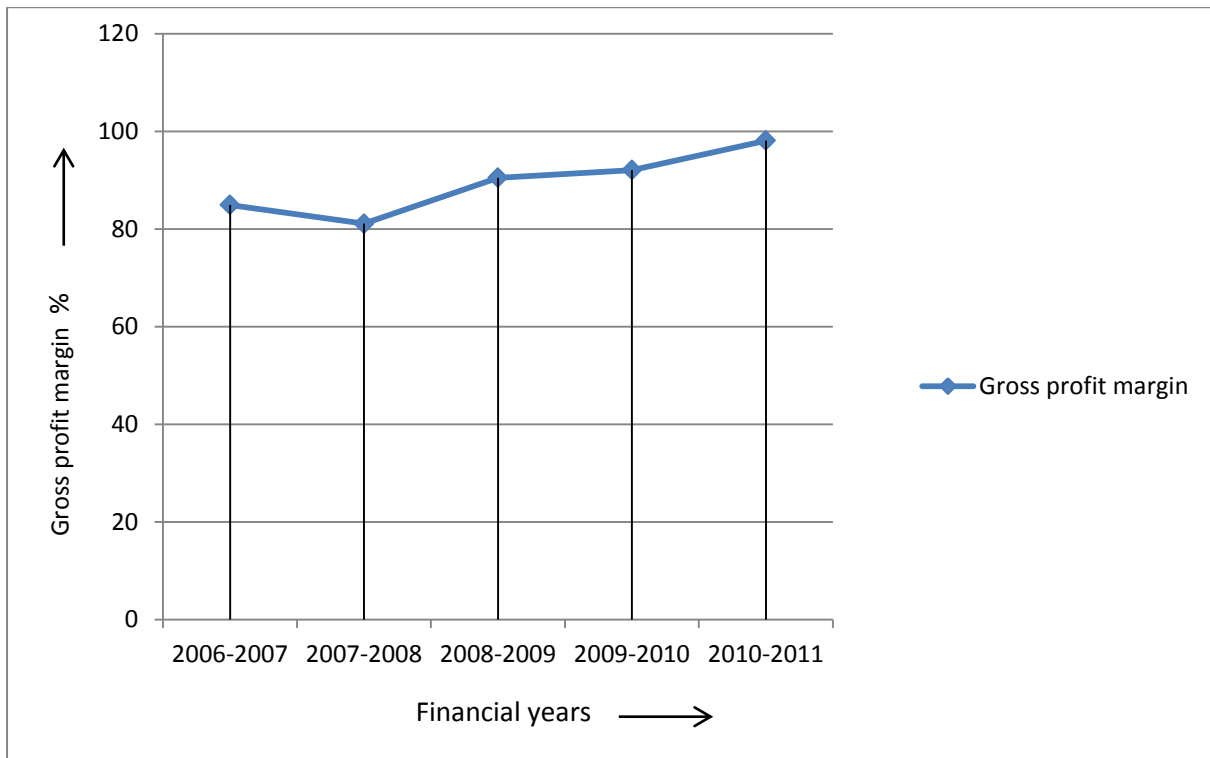


Fig. 4.3.5 Gross profit margin in % of CIL from financial year 2006-07 to 2010-11

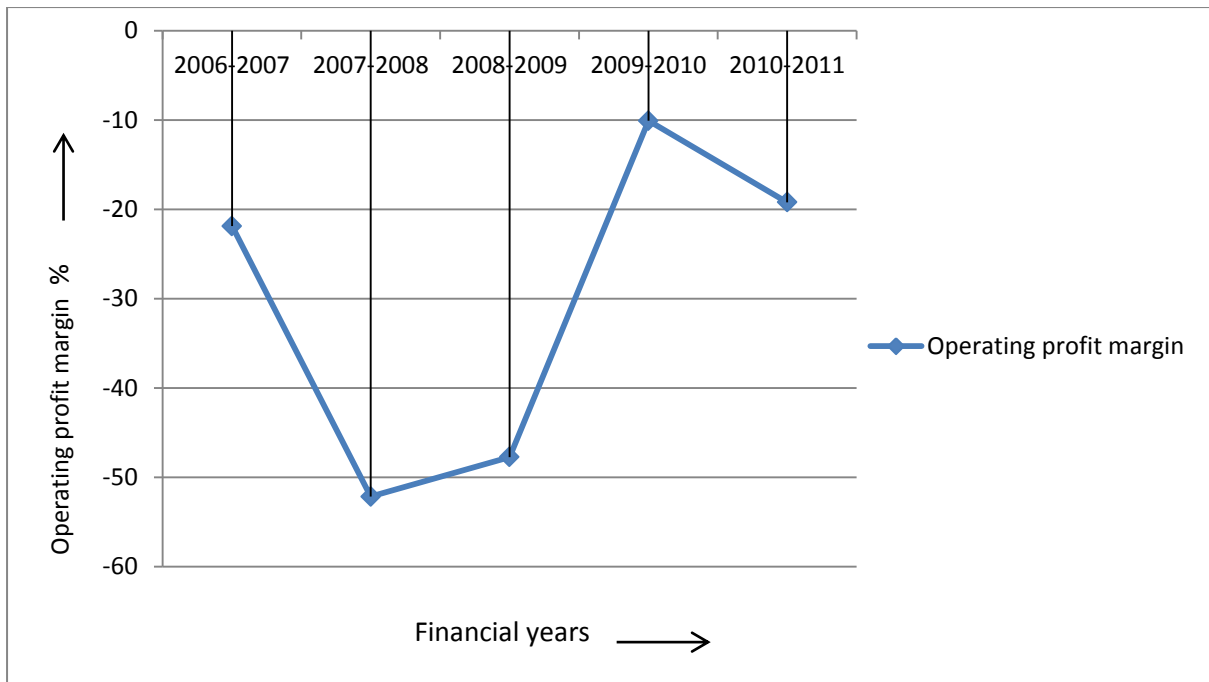


Fig. 4.3.6 Operating profit margin in % of CIL from financial year 2006-07 to 2010-11

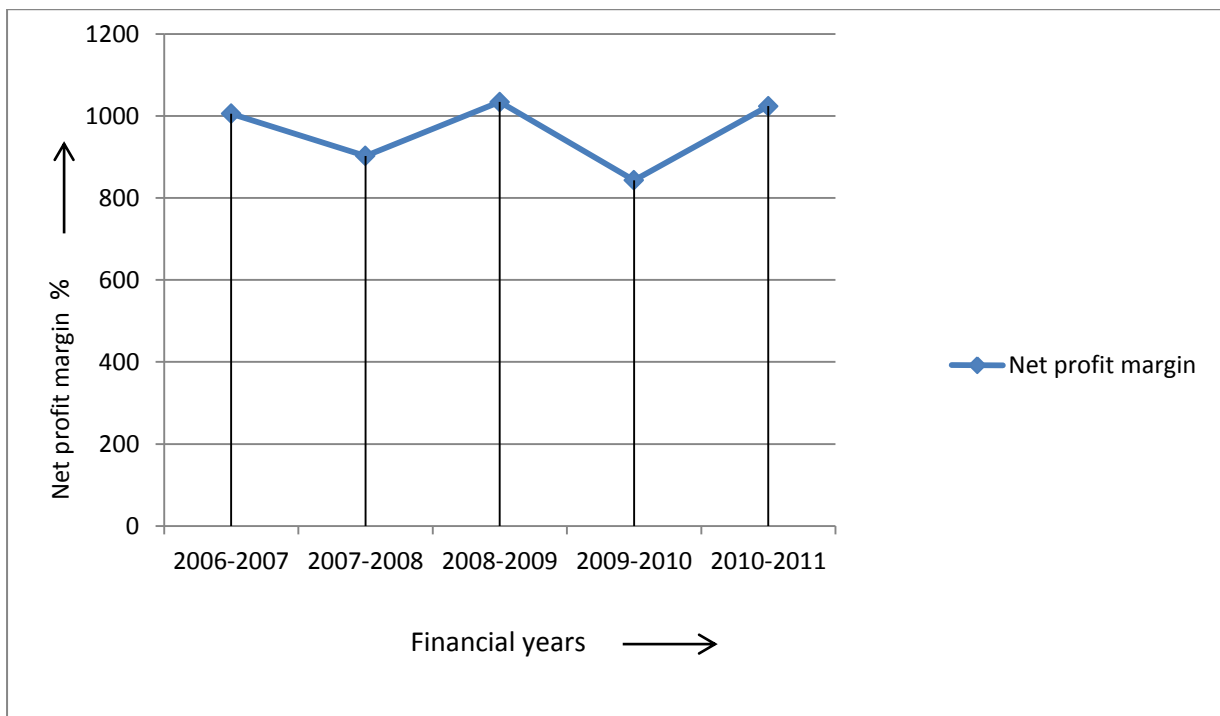


Fig. 4.3.7 Net profit margin in % of CIL from financial year 2006-07 to 2010-11

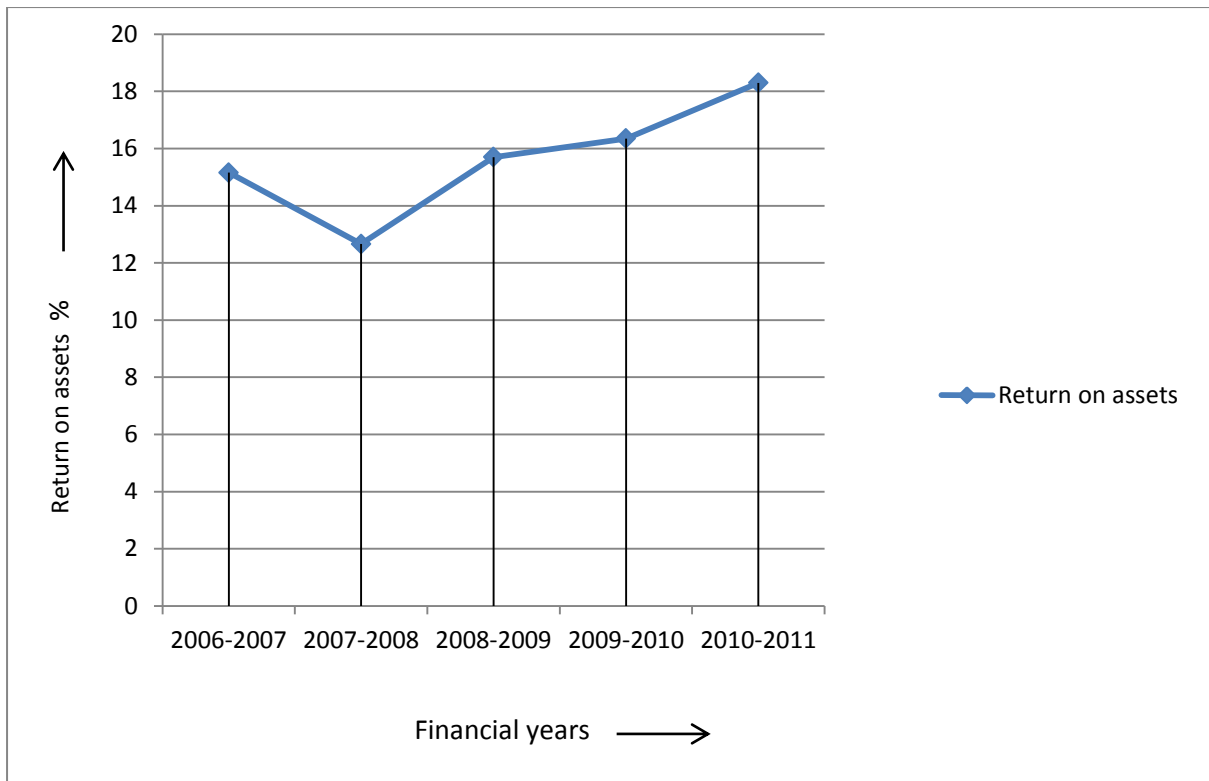


Fig. 4.3.8 Return on assets in % of CIL from financial year 2006-07 to 2010-11

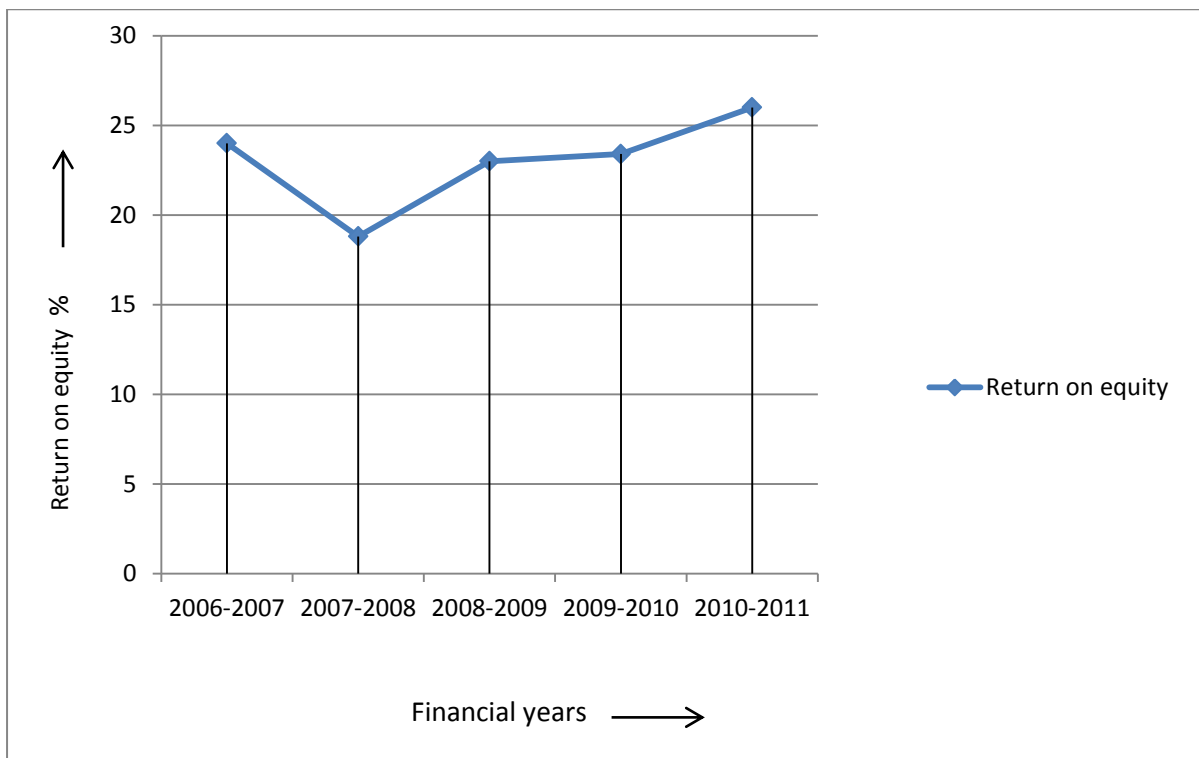


Fig. 4.3.9 Return on equity in % of CIL from financial year 2006-07 to 2010-11

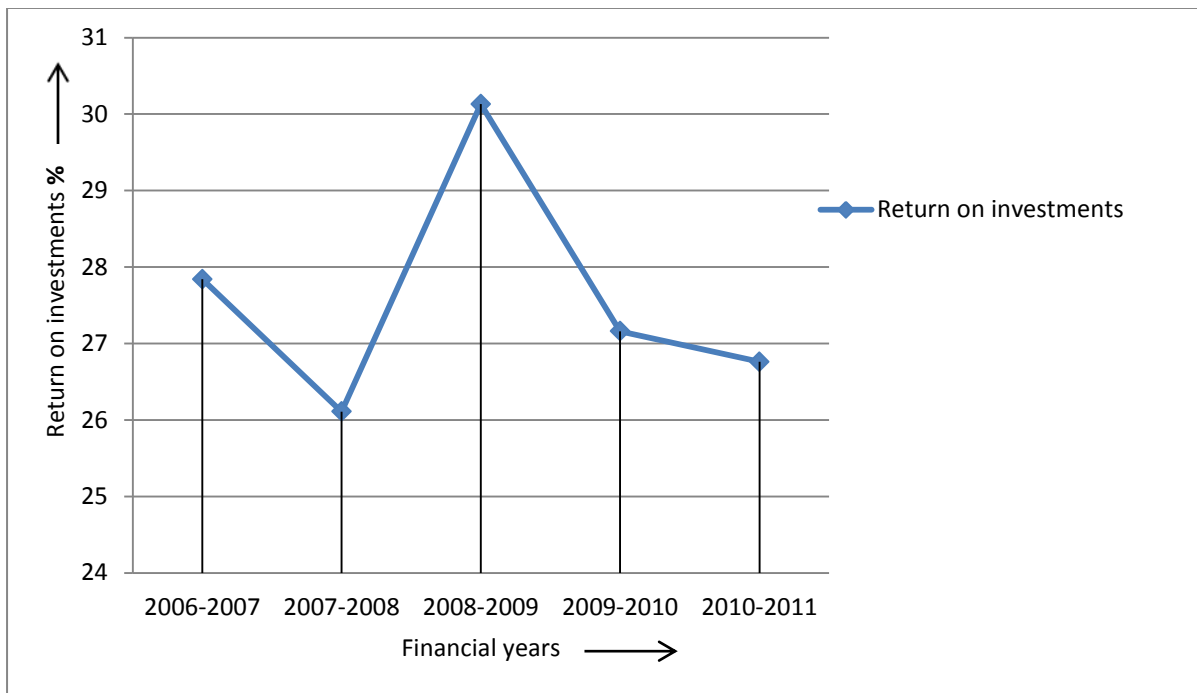


Fig. 4.3.10 Return on investments in % of CIL from financial year 2006-07 to 2010-11

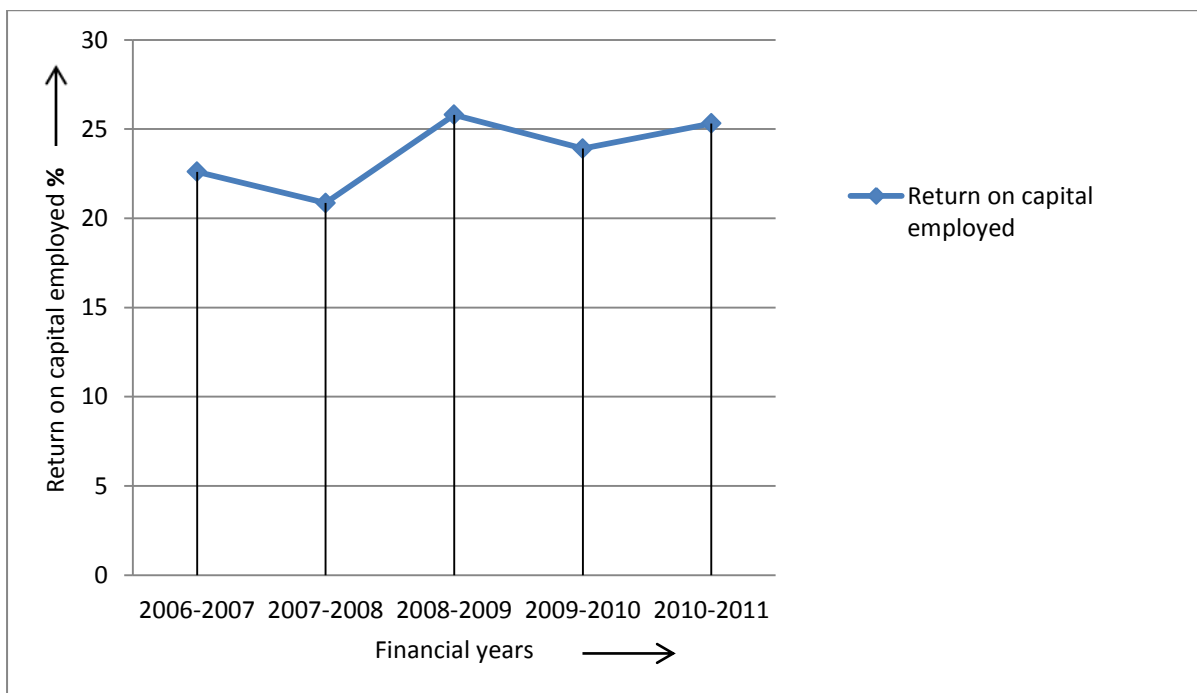


Fig. 4.3.11 Return on capital employed in % of CIL from financial year 2006-07 to 2010-11

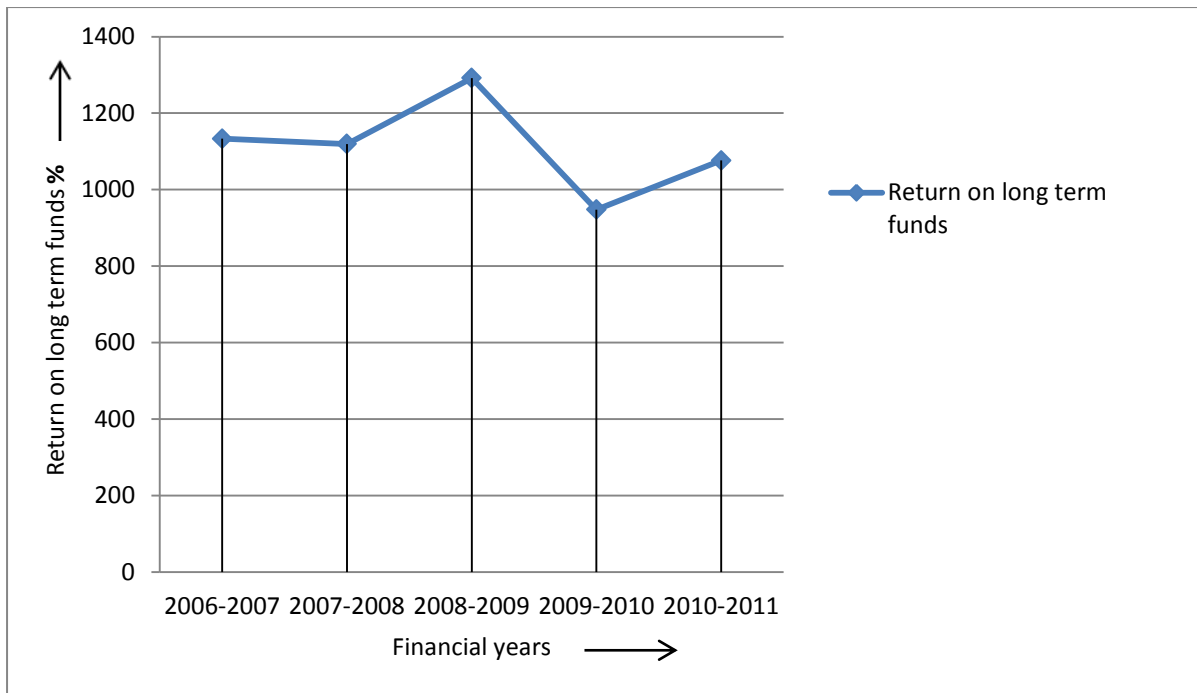


Fig. 4.3.12 Return on long term funds % of CIL from financial year 2006-07 to 2010-11

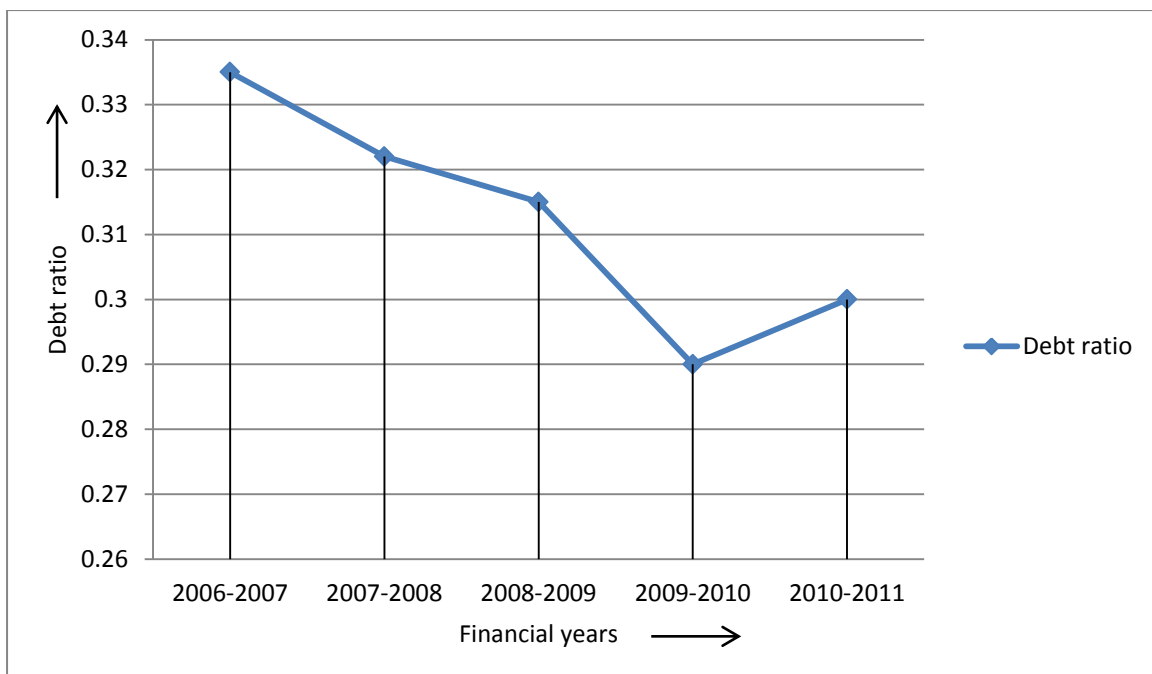


Fig. 4.3.13 Debt ratio of CIL from financial year 2006-07 to 2010-11

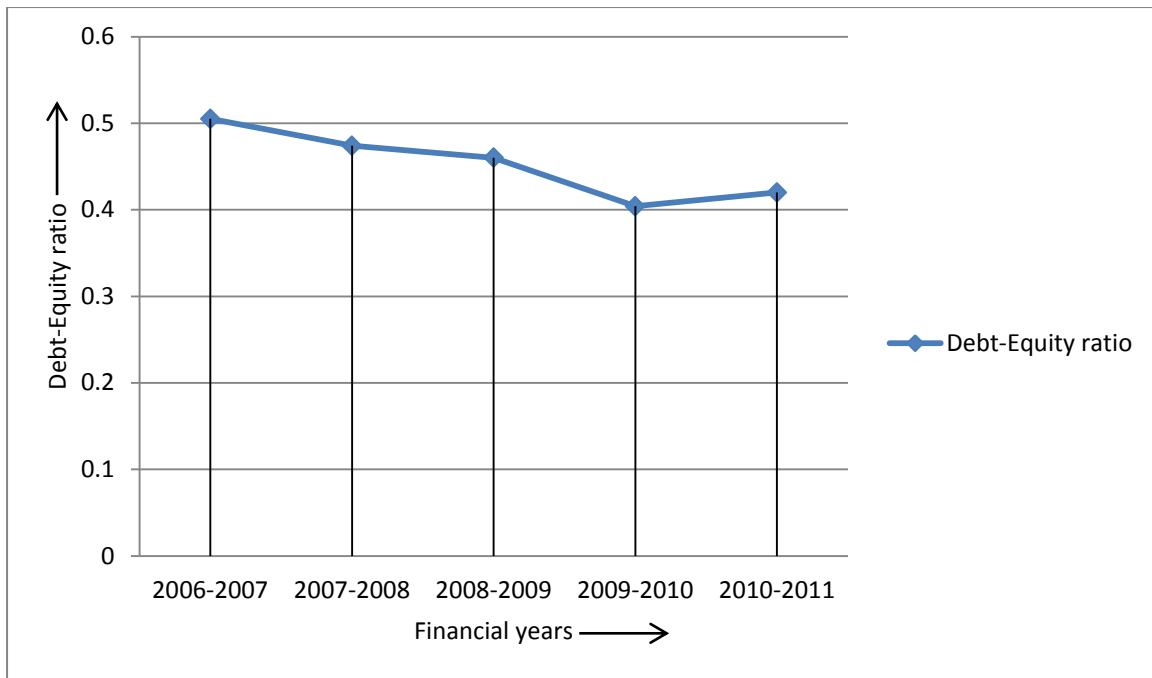


Fig. 4.3.14 Debt-Equity ratio of CIL from financial year 2006-07 to 2010-11

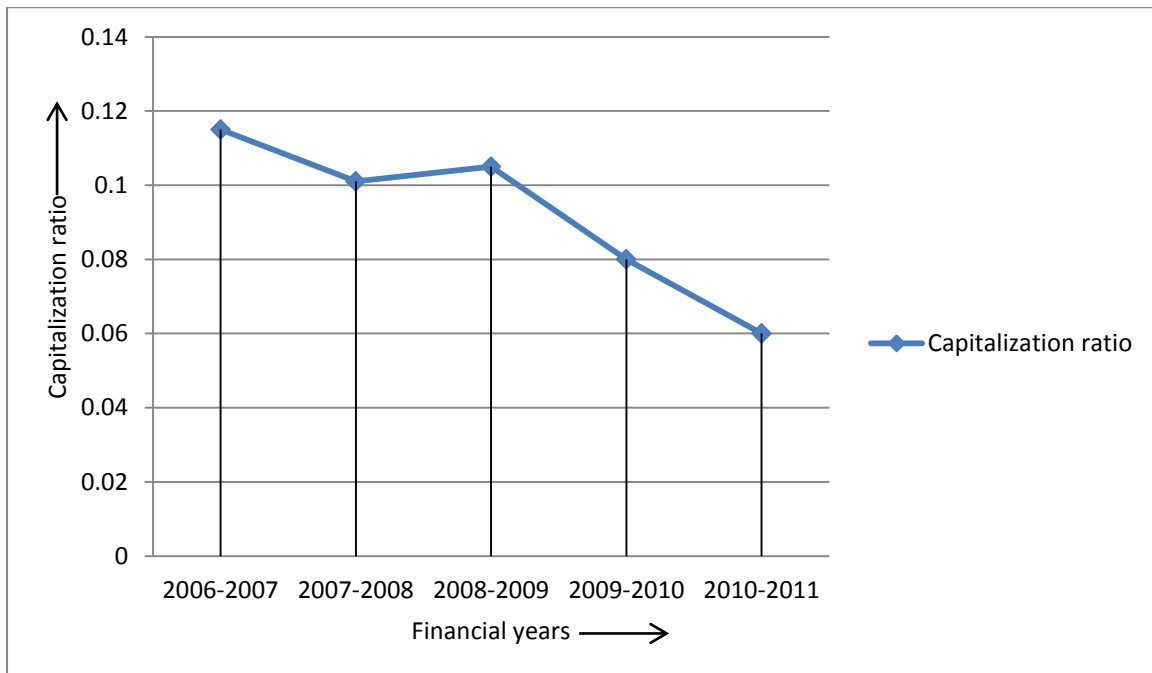


Fig. 4.3.15 Capitalization ratio of CIL from financial year 2006-07 to 2010-11

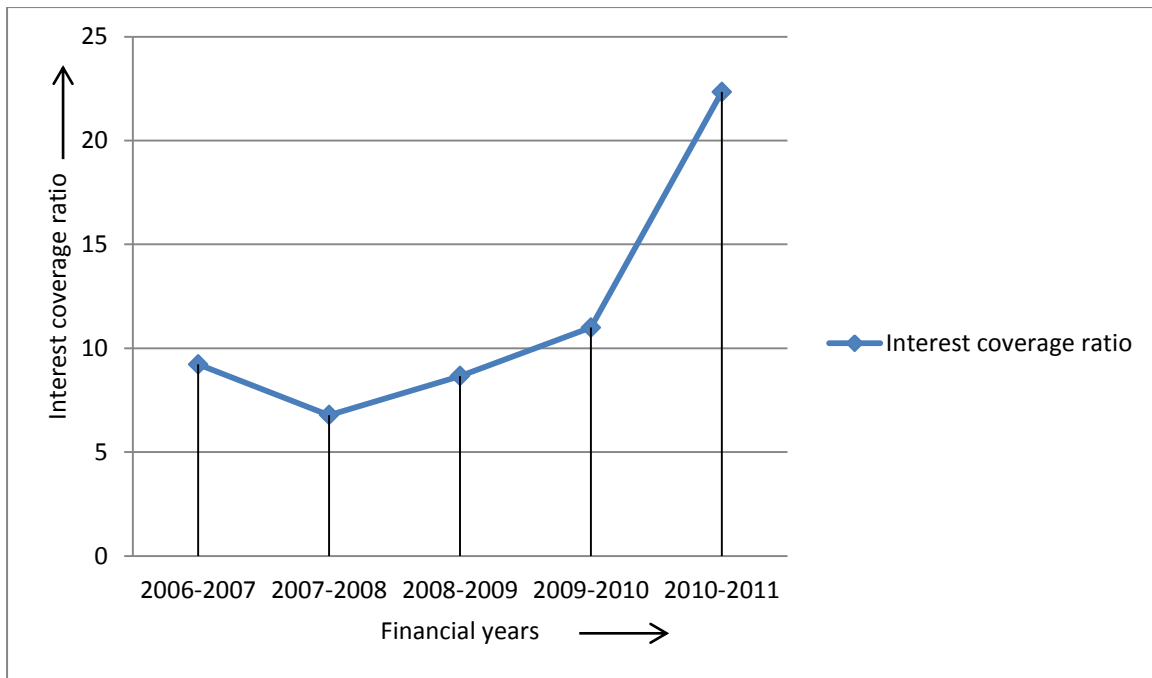


Fig. 4.3.16 Interest coverage ratio of CIL from financial year 2006-07 to 2010-11

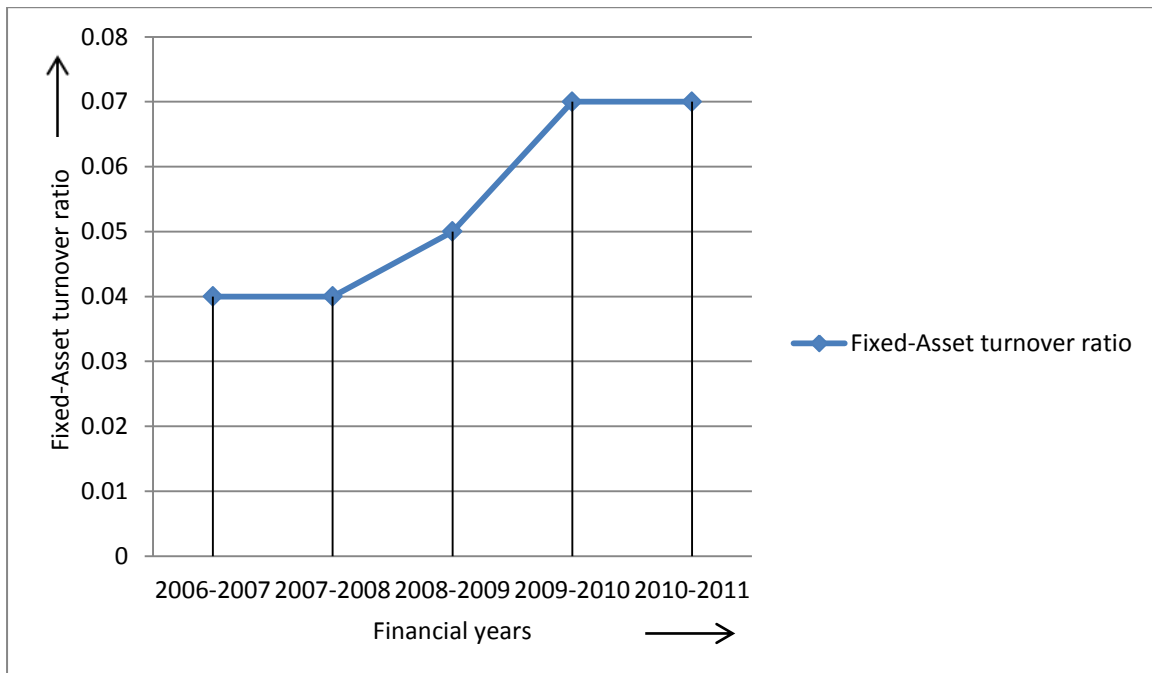


Fig. 4.3.17 Fixed-Asset turnover ratio of CIL from financial year 2006-07 to 2010-11

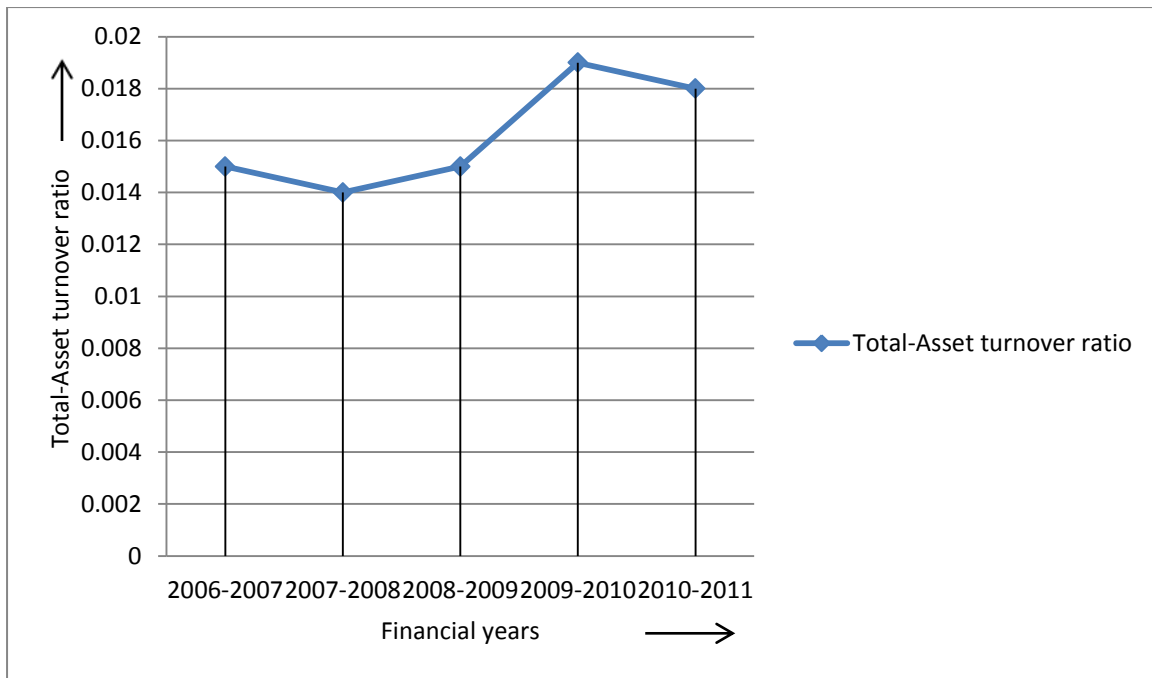


Fig. 4.3.18 Total-Asset turnover ratio of CIL from financial year 2006-07 to 2010-11

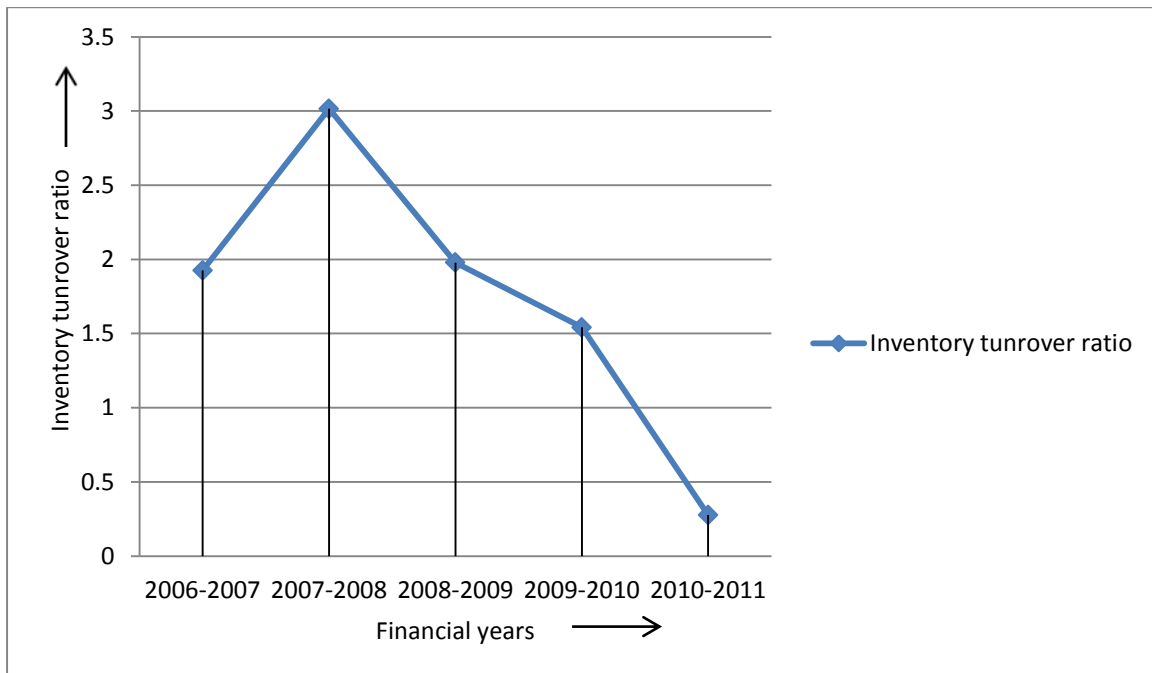


Fig. 4.3.19 Inventory turnover ratio of CIL from financial year 2006-07 to 2010-11



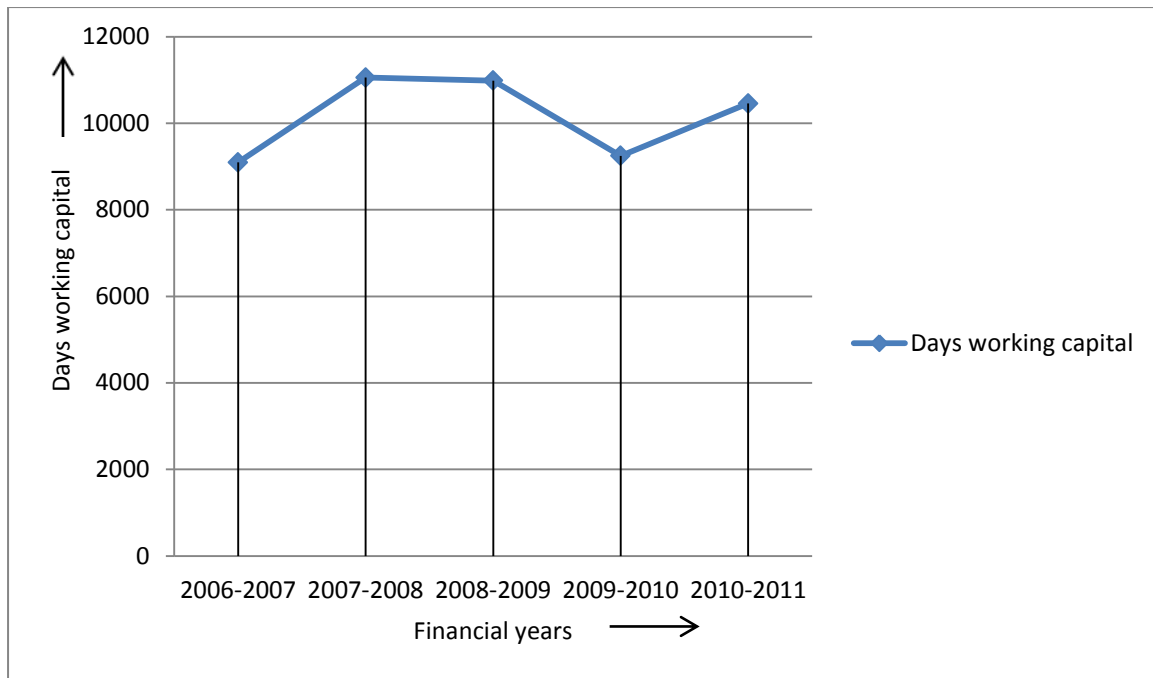


Fig. 4.3.20 Days working capital of CIL from financial year 2006-07 to 2010-11

### 4.3.3 Summary

It was seen that in all the financial years i.e. from 2006-2011 the company was having enough money, so the liquidity position of the company was quite good as the working capital was in good condition. Current ratio and quick ratio of the company were also above the limit i.e. current ratio was above 2 and the quick ratio was above 1.5 that means company was in healthy financial condition. The Fig. 4.3.4 shows the cash ratio graph which was increasing from 0.78 to 1.7, in all these financial years the company liquidity position was good as it was having the immediate amount of cash available to pay its short term liabilities.

In all these financial years the company had higher gross profit margin, which revealed that the company had maintained its production cost to a limited range and made a high amount of profit. But the company had low operating profit margin which was not good for the company. Net profit margin in all these financial year was very good, so the company have made profit from other sources. The company had earned very less on its assets during the financial years but return on investments was good.

The equity position of the company was good and the value which is below 0.5 of debt ratio indicates that the company had less debt and no risk to bankruptcy. As the company capitalization ratio was so less in all these financial years, it revealed that the company was much stronger in financial status and its long term debt were too less.

As the company had huge assets so the turnover made by the company in a year is not enough to show the proper use of its assets. In all these financial years, the company had shown increasing turnover ratio from 0.04 to 0.07 which stated that the company was not using its assets properly.

#### **4.3.4 Suggestion for improvement**

The company should have tried to make operating profit by making its operating expenses as low as possible. It should have used its assets properly so as to make fixed asset turnover and total asset turnover to 1. The company should have paid its debt, so as to keep its interest payment to a minimum value.

## 4.4 LAKHANPUR COAL MINE AREA, MCL

### 4.4.1 Introduction

Lakhanpur opencast Project is situated in IB Valley Coal Fields of MCL and is located at about 11 KM south of Belpahar railway station on Bombay-Howrah railway line of South Eastern Railway. Lajkura seam having a thickness of 25-32m and gradient 1 in 18 occurs at a shallow depth and is in operation at Lakhanpur OCP which is designed to produce 15 MT. of 'F' grade coal per annum for a period of 25 years(Mine life). There are five coal seams in the sub-block considered for the open cast mining. They are (1) Belpahar (2) Parkhani (3) Lajkura (4) Rampur and (5) IB Seam in descending order. In the area chosen for open cast mining under the Project Report for Lakhanpur OCP, only Lajkura seam is proposed to be worked where the upper seams do not exists. The two seams (Rampur and IB) beneath Lajkura occur with large parting and these could be worked by underground method after exhausting the Lajkura seam. The available dirt bands 1 to 5 in numbers are combustible (carb shales) and 1.47m to 6.91m in thickness. One such thick band persists in the lower half of the seam throughout the block. Thickness of bands tend to increase towards south as well as towards west of the property.



Fig. 4.4 Location of Lakhanpur Coal Mine Area, MCL [28]

Table 4.4.1 Balance Sheet-Lakhanpur Coal Mine Area, MCL as at 31<sup>st</sup> Mar'11 (All figures in Rs. Crores) [38,39]

	Mar'11	Mar'10	Mar'09
<b>SOURCES OF FUNDS</b>			
1) Shareholder's Funds			
a) capital	609.89	267.78	206.72
b) Reserves and surplus	0.00	0.00	0.00
2) Loan Funds			
a) Secured	0.00	0.00	0.00
b) Unsecured	8.97	9.09	11.10
<b>Grand Total</b>	<b>618.87</b>	<b>276.87</b>	<b>217.83</b>
<b>APPLICATION OF FUNDS</b>			
1) fixed Assets			
a) Gross Block	657.61	500.79	456.00
Less: Depreciation	316.41	291.95	268.70
Less: Provision for loss of Asset	0.08	0.05	0.00
Net Block	341.11	208.78	187.30
b) Capital work in progress	9.51	48.41	6.75
Less: Provision	0.09	0.09	0.08
Total	9.42	48.32	6.67
c) Retained Assets in stores	5.77	4.81	5.12
Less: Provision	3.46	2.37	2.41
Total	2.31	2.43	2.71
<b>TOTAL</b>	<b>352.84</b>	<b>259.55</b>	<b>196.69</b>
2) Current Assets, loans and advances			
a) Inventories	99.60	55.41	92.90
b) Debtors	0.00	0.00	0.00
c) Cash and Bank Balances	0.39	0.97	0.46
d) Other current assets	-0.44	0.21	0.11
e) Loans and Advances	35.77	20.40	12.75
<b>TOTAL</b>	<b>135.33</b>	<b>77.00</b>	<b>106.23</b>

Current Liabilities and Provisions	2,036.84	1,714.71	1,241.77
Net Current Assets	-1,901.51	-1,637.70	-1,135.53
3) Inter Area Current Account with Sambalpur HQ	2,167.54	1,655.03	1,156.68
<b>TOTAL</b>	<b>618.87</b>	<b>276.87</b>	<b>217.83</b>

Table 4.4.2 Profit and loss statement of Lakhanpur Coal Mine Area, MCL as at 31<sup>st</sup> Mar'11  
(All figures in Rs. Crores) [38,39]

	Mar'11	Mar'10	Mar'09
<b>INCOME</b>			
Sales	1,365.61	1,086.99	955.21
Accretion / Decretion in stock	41.85	-37.69	13.84
Other Income	97.10	96.66	86.43
<b>Total Income</b>	<b>1,504.58</b>	<b>1,145.96</b>	<b>1,055.48</b>
<b>EXPENDITURE</b>			
Material Consumed	341.28	439.72	413.55
Selling Expenses	234.66	206.95	211.27
Contractual Expenses	198.45	158.02	132.73
Other Expenditure	71.72	48.43	56.49
<b>Total Expenditure</b>	<b>846.11</b>	<b>853.12</b>	<b>814.04</b>
Operating Profit	519.5	233.87	141.17
EBITDA	658.46	292.84	241.44
Less:			
Interest	1.42	1.69	2.89
Depreciation	40.29	21.87	36.49
Provision	6.76	1.56	-7.44

Profit and Loss for the Year	609.97	267.69	209.49
Prior Period Adjustments	0.07	-0.08	0.27
Other adjustments	609.90	267.78	206.72
Provision for Income Tax	0.00	0.00	0.00
<b>Reported PAT</b>	<b>609.90</b>	<b>267.78</b>	<b>206.72</b>

#### 4.4.2 Ratio analysis: financial year 2008-09 to 2010-11

Table 4.4.3 Analysis of Financial Ratios of Lakhanpur Coal Mine Area, MCL from financial year 2008-09 to 2010-11

Financial ratios	2008-2009	2009-2010	2010-2011	Remarks
Working capital (in Rs crores)	-1901.51	-1637.71	-1135.54	poorer
Current ratio	0.08	0.04	0.067	Very poor, more risk to company
Quick ratio	0.01	0.01	0.01	Not desirable.
Cash ratio	0.00034	0.0006	0.0002	Immediate liquidity is very less.
Gross profit margin (in %)	56.70	59.55	75	Good
Operating profit margin (in %)	14.78	21.51	38.04	Satisfactory
Net profit margin (in %)	21.64	24.63	44.66	Considerable
Return on assets (in %)	72.14	83.75	147.9	Better utilization of assets

Return on equity (in %)	103.36	121.87	139	Proper use of shareholder's funds
Return on investments (in %)	100	99.33	99.78	Good
Return on capital employed (in %)	-22.94	-22.96	-41.58	Not considerable
Return on long term funds (in %)	21.63	24.47	44.56	Good
Debt ratio	4.136	5.122	4.19	More risk to company
Debt-Equity ratio	6.06	6.44	3.35	More debt
Capitalization ratio	0.0534	0.034	0.015	Very less debt of long-term
Interest coverage ratio	73.49	158.47	427.55	Good
Fixed-Asset turnover ratio	4.86	4.2	3.87	Considerable
Total assets turnover ratio	3.333	3.40	3.1	Considerable
Inventory turnover ratio	5.85	5.93	4.403	Considerable

The Fig. 4.3.1 to Fig. 4.3.19 shows different ratio analysis from year 2008-11

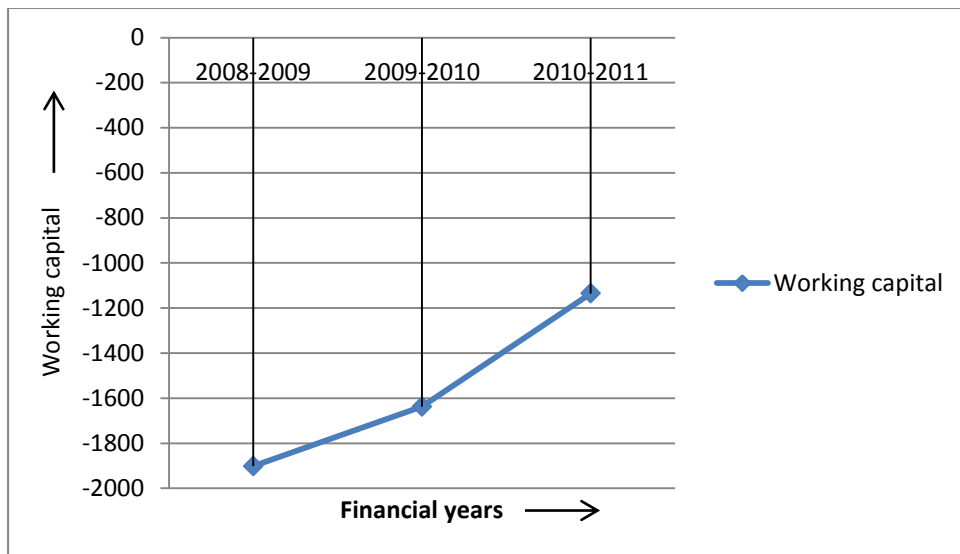


Fig.4.3.1 Working capital of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

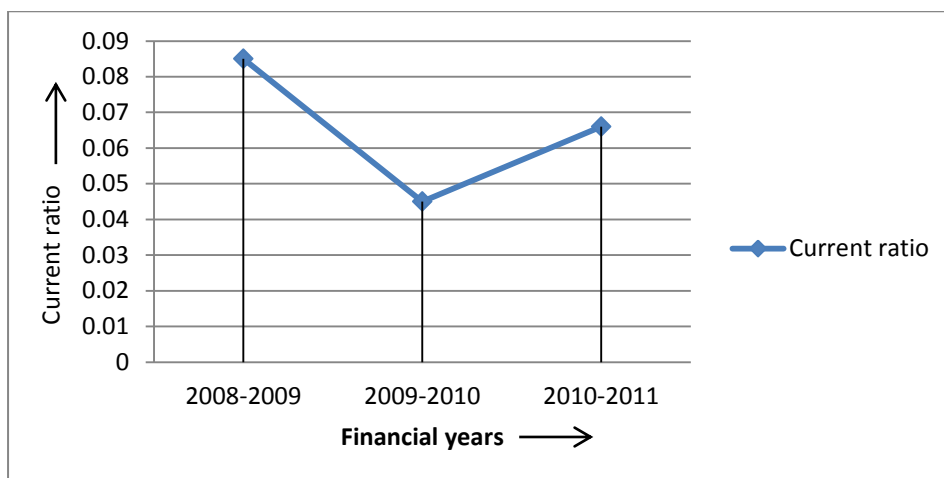


Fig. 4.3.2 Current ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11



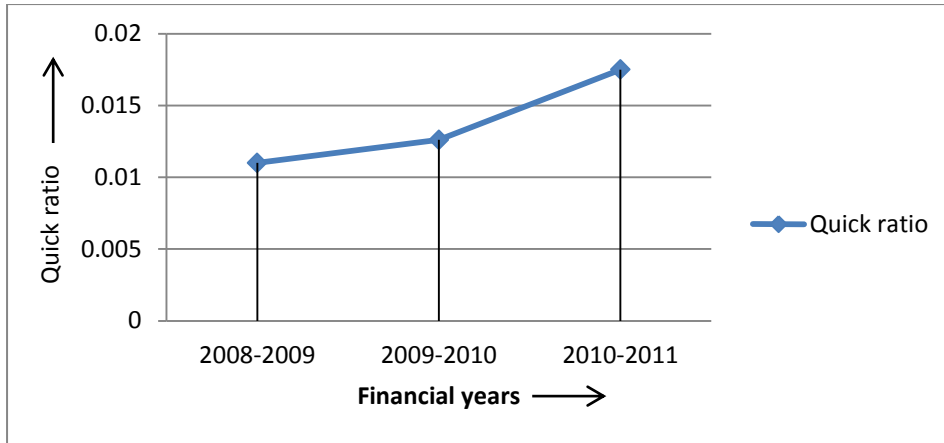


Fig. 4.3.3 Quick ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

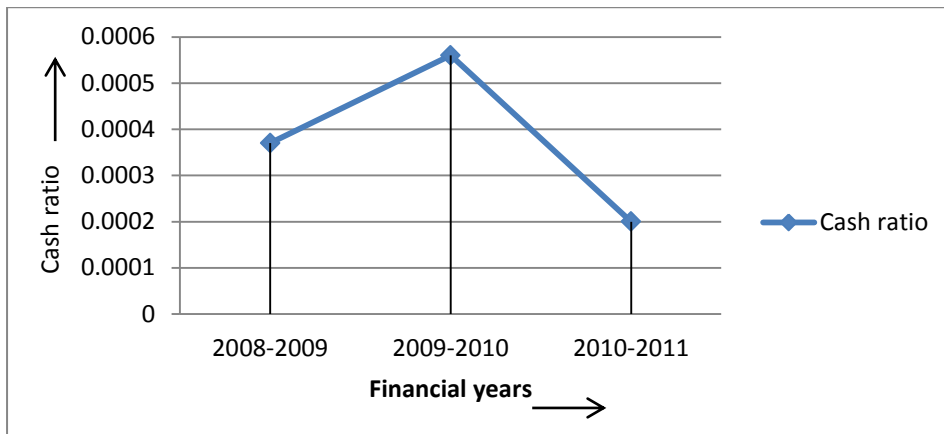


Fig. 4.3.4 Cash ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

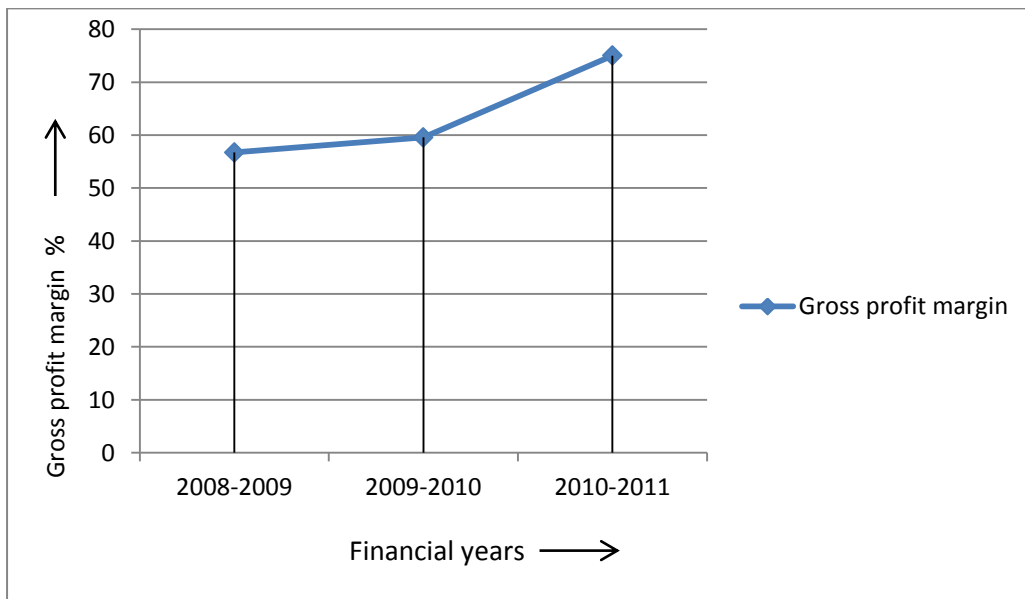


Fig. 4.3.5 Gross profit margin in % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

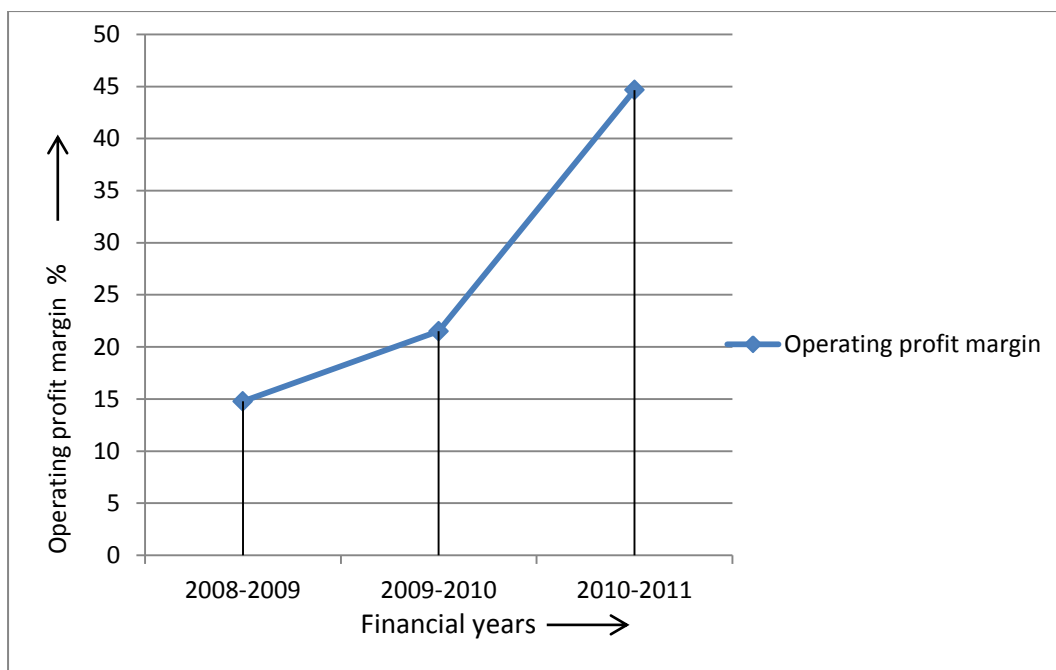


Fig. 4.3.6 Operating profit margin in % of Lakhanpur Coal Mine, MCL financial year 2008-09 to 2010-11

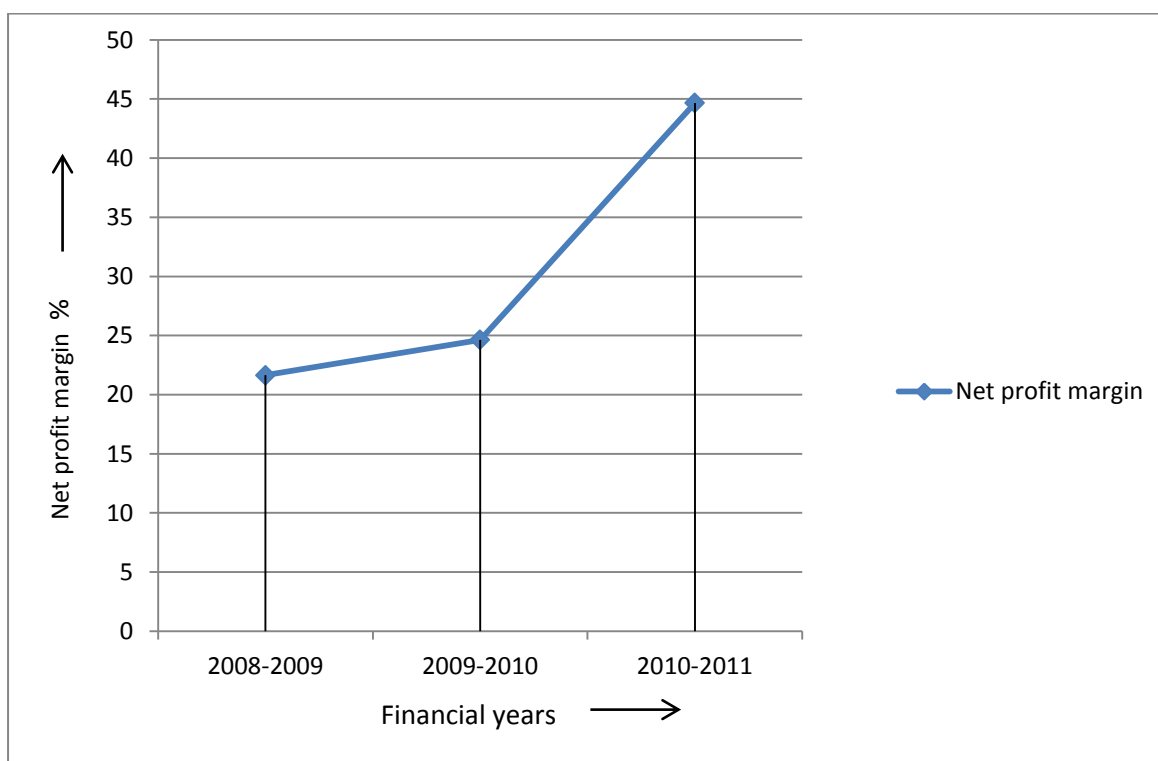


Fig. 4.3.7 Net profit margin in % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

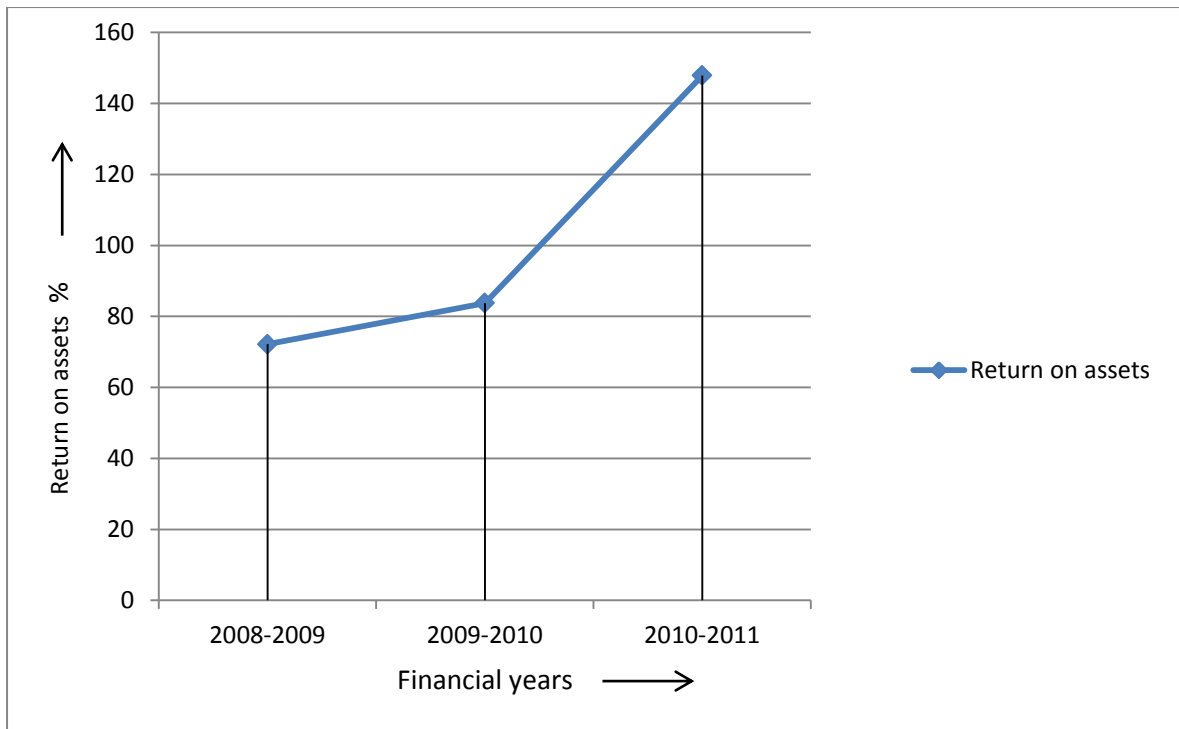


Fig. 4.3.8 Return on assets in % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

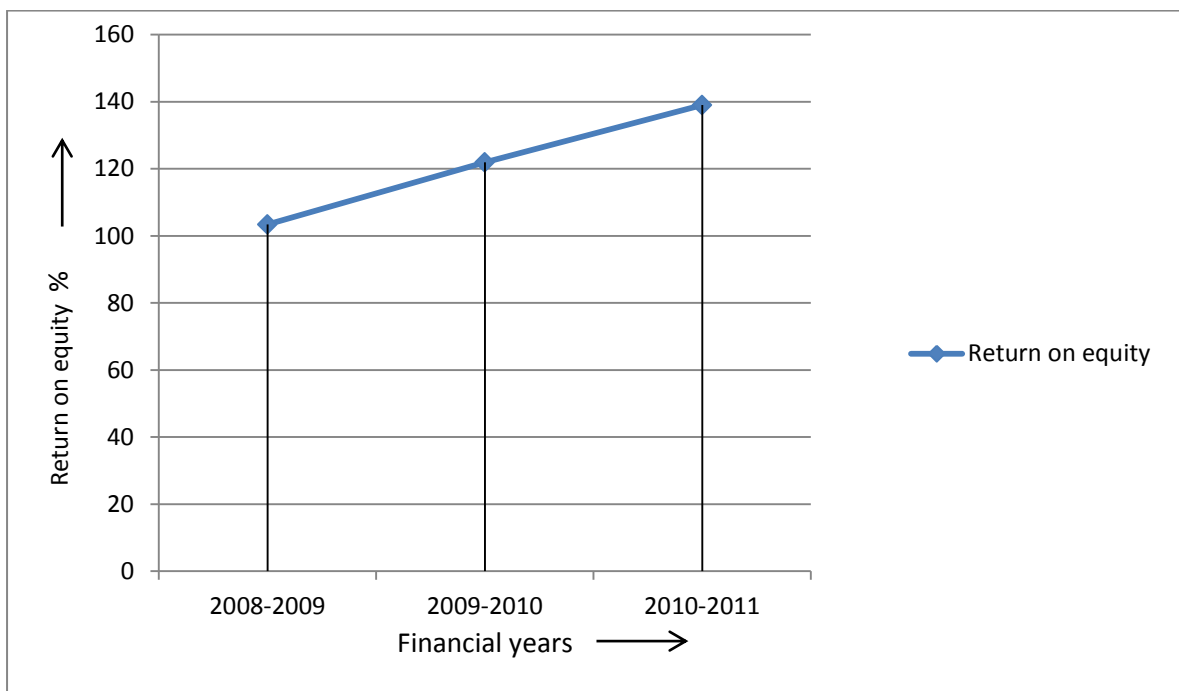


Fig. 4.3.9 Return on equity in % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

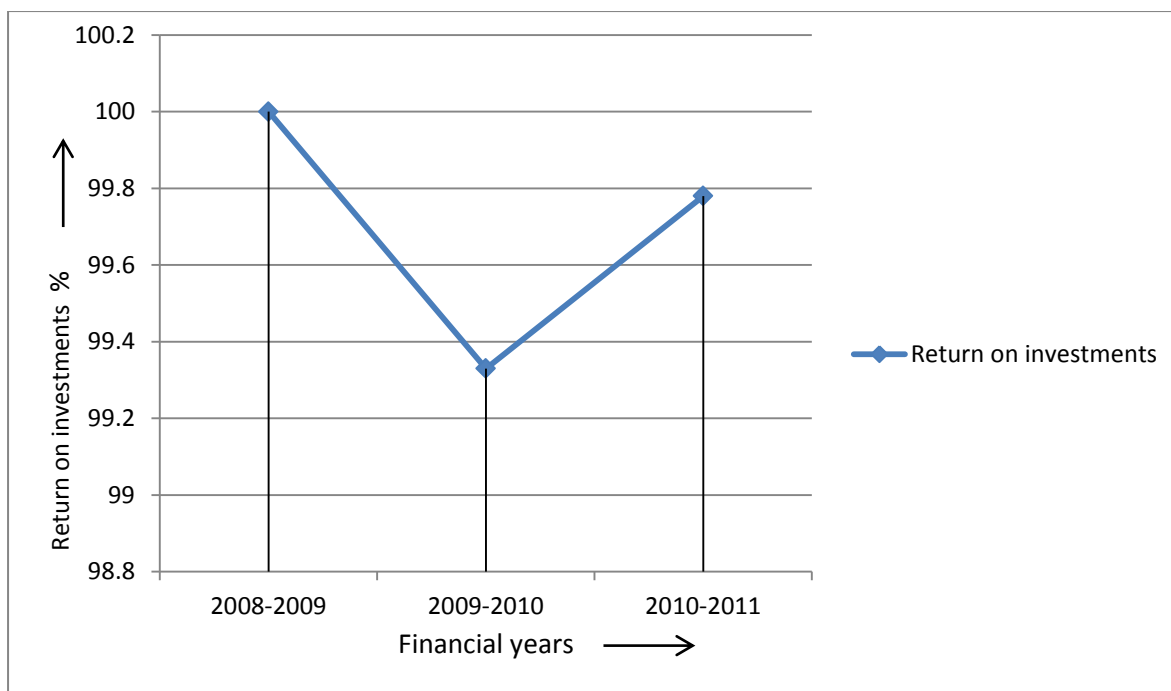


Fig. 4.3.10 Return on investments in % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

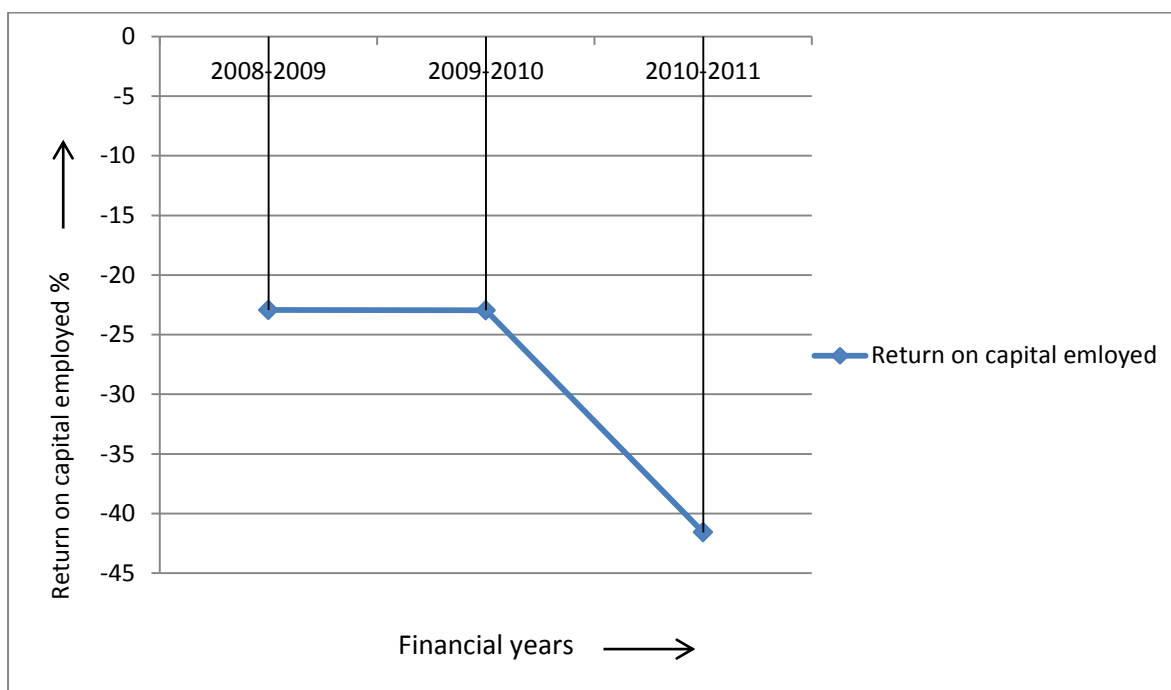


Fig. 4.3.11 Return on capital employed in % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

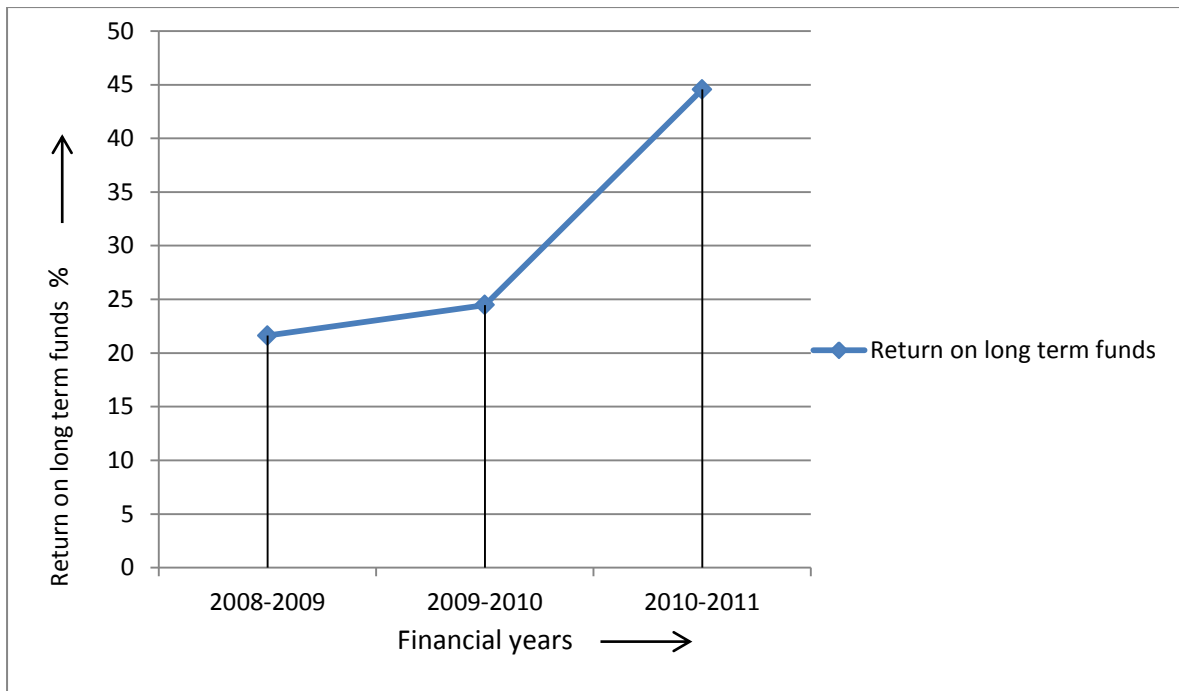


Fig. 4.3.12 Return on long term funds % of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

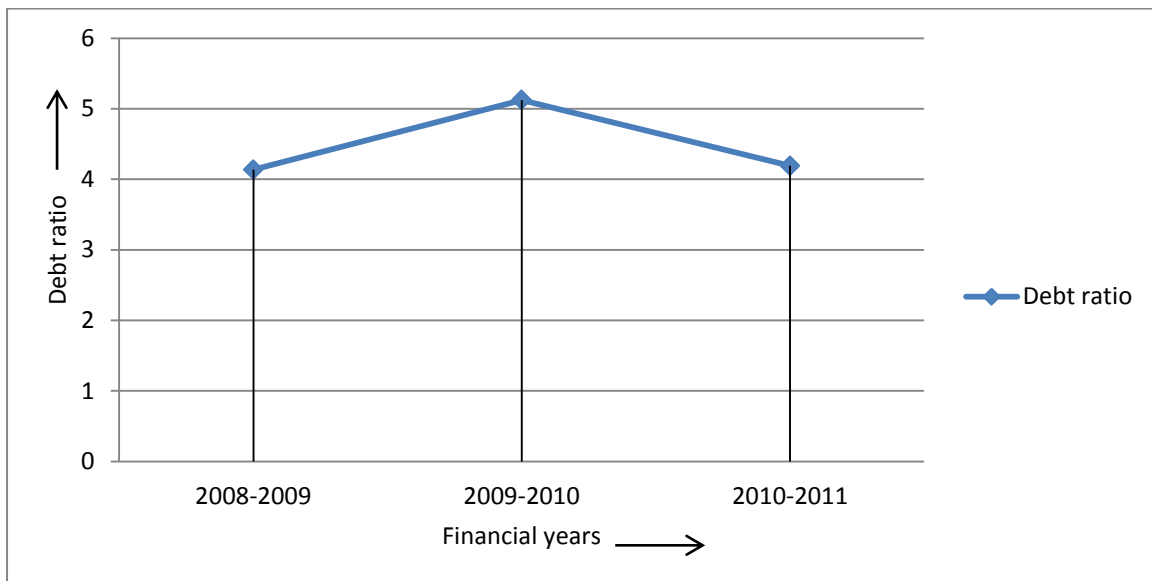


Fig. 4.3.13 Debt ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

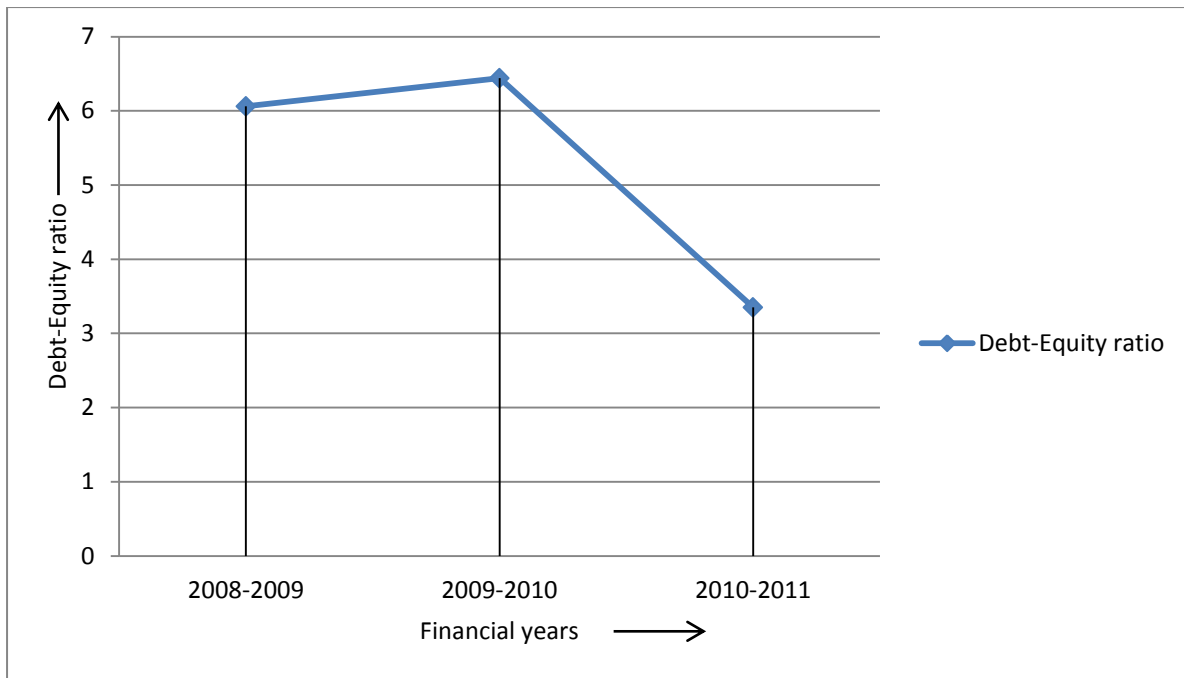


Fig. 4.3.14 Debt-Equity ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

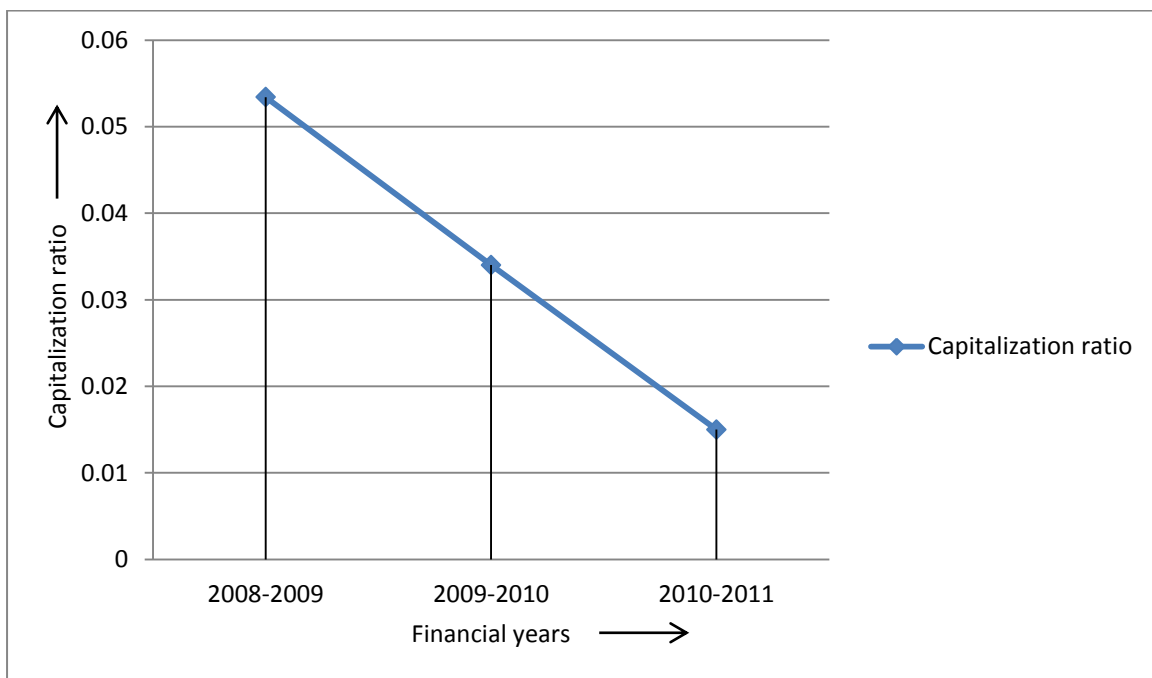


Fig. 4.3.15 Capitalization ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

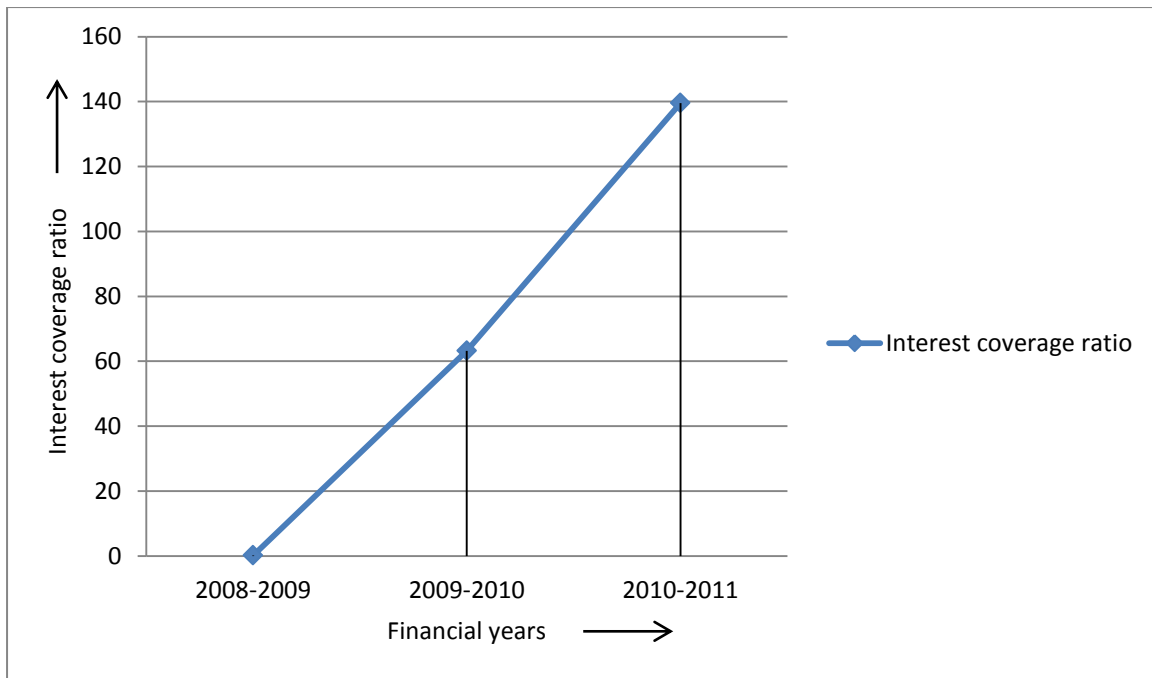


Fig. 4.3.16 Interest coverage ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

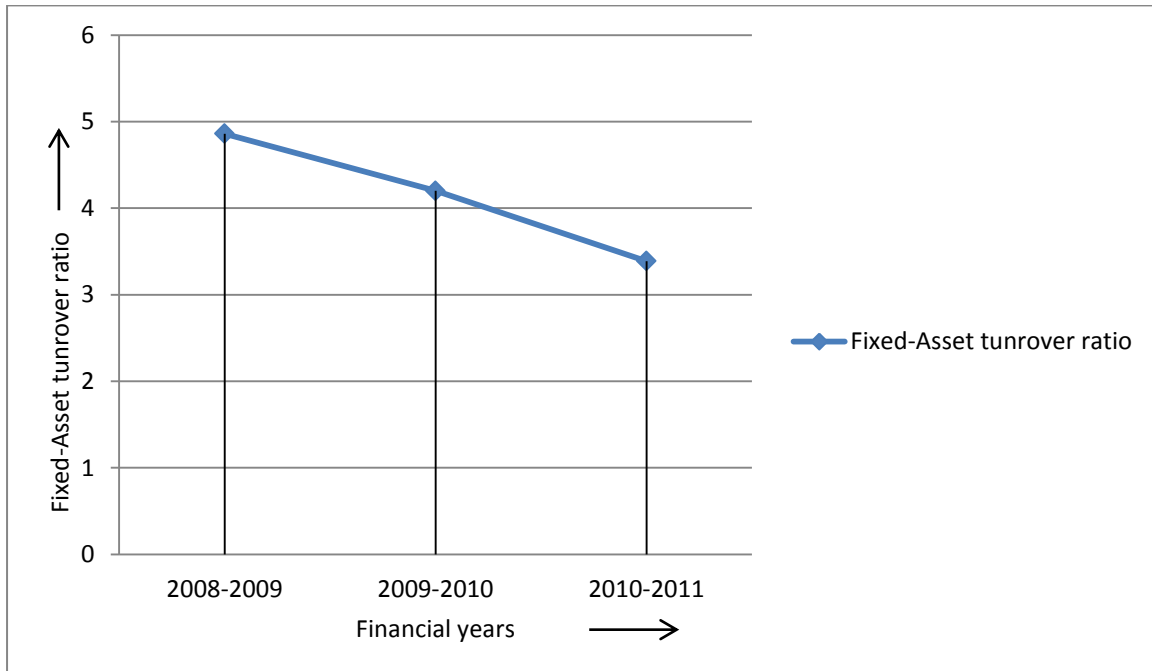


Fig. 4.3.17 Fixed-Asset turnover ratio of Lakhanpur Coal Mine, MCL financial year 2008-09 to 2010-11

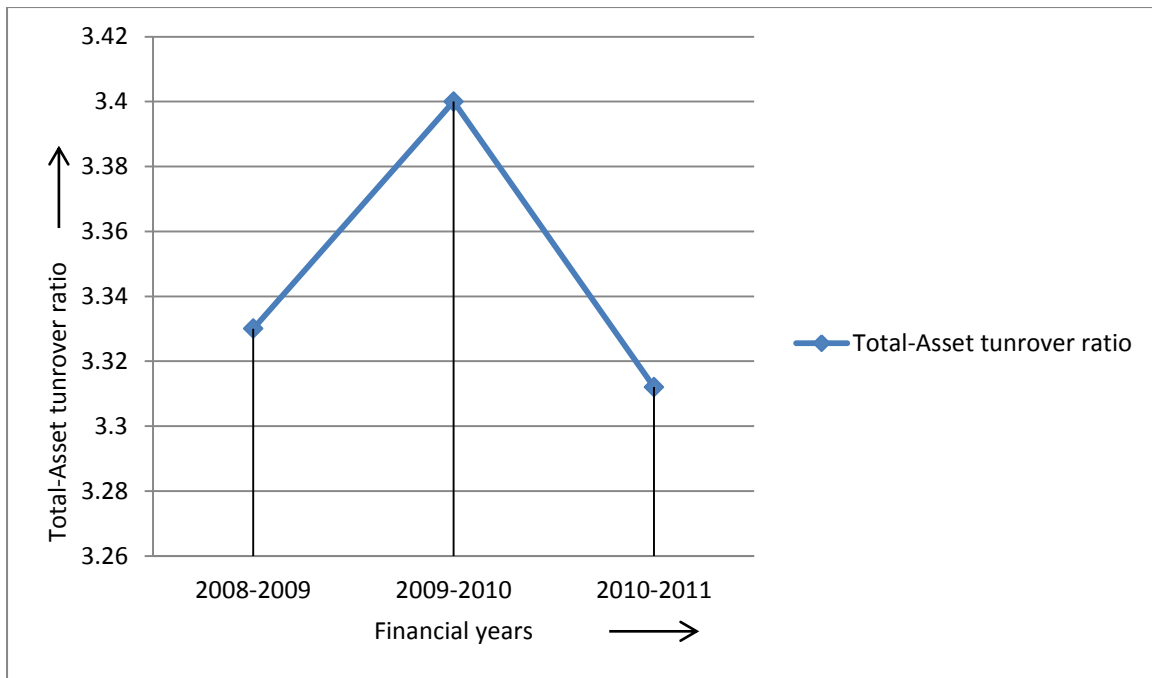


Fig. 4.3.18 Total-Asset turnover ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11

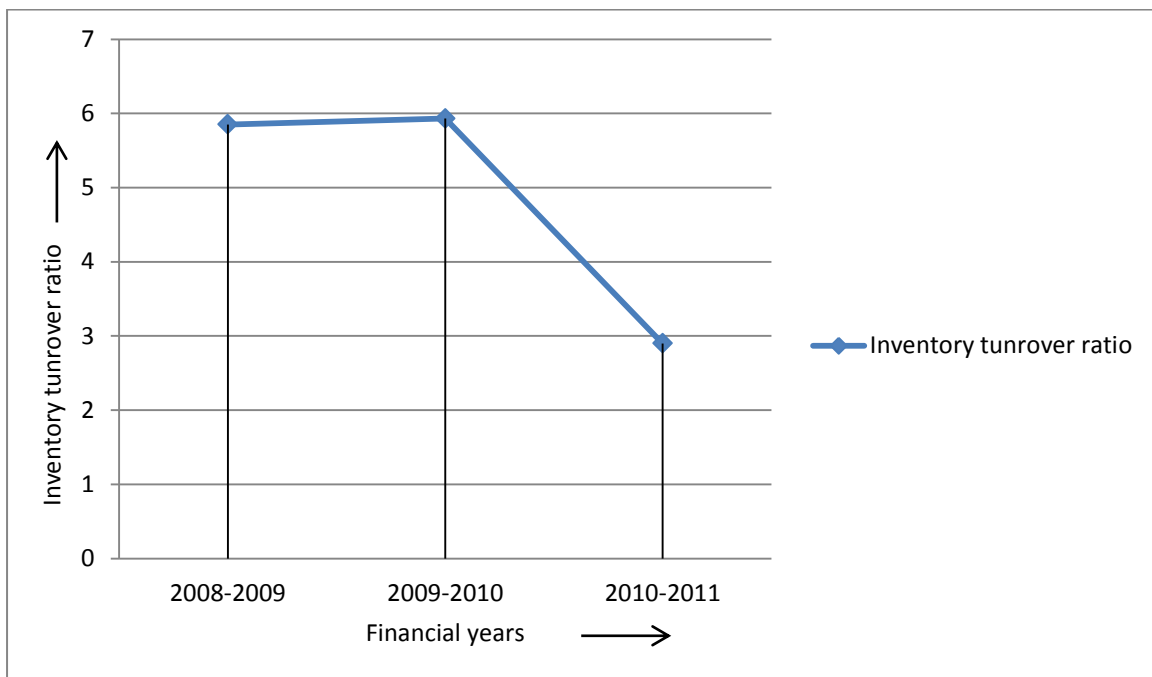


Fig. 4.3.19 Inventory turnover ratio of Lakhanpur Coal Mine, MCL from financial year 2008-09 to 2010-11



#### **4.4.3 Summary**

As the working capital value was in negative for the financial year 2008-09 to 2010-11 it indicated that the Lakhanpur coal mine area had huge current liabilities than current assets. The mine had done its operations from the money which is available from its current liabilities as it has very less current assets. The current ratio, quick ratio and cash ratio value were very less than the desirable which shows that the mine does not have very good financial condition.

In financial year 2010-11 the mine had higher gross profit margin, operating profit margin and net profit margin than its initial financial years 2008-09 to 2009-10, which articulates that the company has maintained its production cost to a limited range and made a high amount of profit. The increasing trend of the profit was due to the increase in production of the company which ultimately reduced the production cost. The company had earned more on its assets and equity during the financial years.

The company had more debt as the value indicated by the debt ratio was very high and had more risk to bankruptcy, but the debts are of short term so the debt will not last for more than few years. As the company capitalization ratio was below 0.02 in all these financial years, it discloses that the company had very less long-term debt.

The asset possessed by the mine was very less as compared to its liabilities so the turnover ratio of its fixed and total asset was considerable. Inventory turnover ratio also shows the good performance of the mine.

#### **4.4.4 Suggestion for improvement**

The company should have increased its current assets than its current liabilities to make positive working capital. The company should have decreased its current liabilities by paying through the profit which is being made. The debt should be minimized to keep debt ratio and debt-equity ratio to a minimum value.

## CHAPTER-5

### COMPARISION OF DIFFERENT COMPANIES

#### 5.1 Current ratio

Table 5.1 Comparison of current ratio for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	1.41	1.47	2.66	CIL was having very good financial condition in all the financial years and it could be seen that it was increasing as the financial year move ahead. HCL financial condition was not good as the value of current ratio of HCL could not reach to its limit in any financial years. While IREL was having current ratio 1.41 in the year 2006-07 this showed the non-availability of cash but in other years the company maintained a well financial condition by keeping its current ratio above 2.
2007-08	2.8	1.76	2.75	
2008-09	2.97	1.65	3.03	
2009-10	2.73	1.87	3.22	
2010-11	2.46	1.71	3.09	

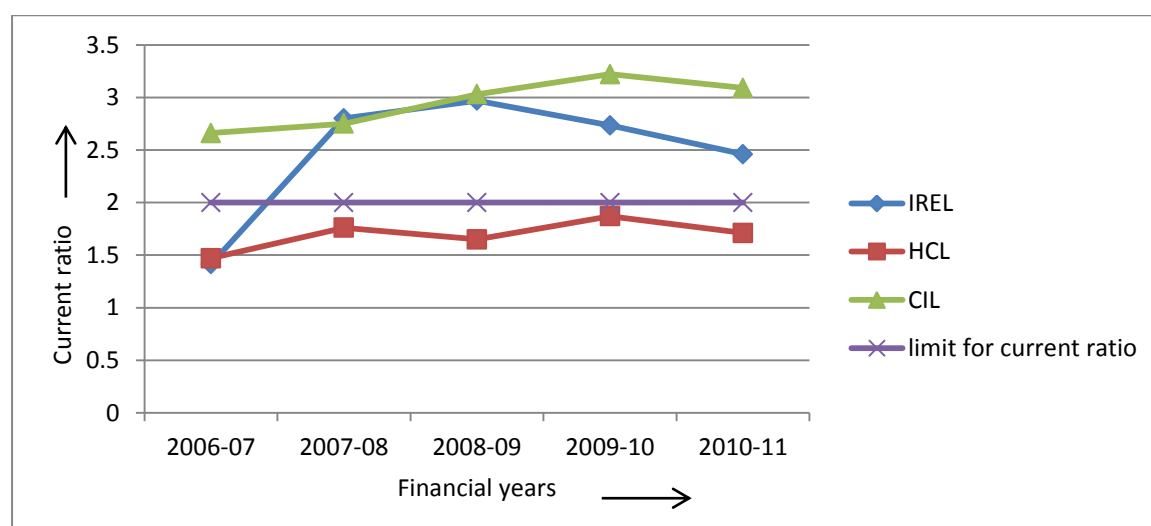


Fig. 5.1 Comparison of current ratio for IREL, HCL and CIL

## 5.2 Cash ratio

Table 5.2 Comparison of cash ratio for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	0.83	0.52	0.78	Cash ratio of IREL was always good while CIL was having cash ratio below 1 for two consecutive financial years i.e. from 2006-08 but after that its cash ratio was above 1 hence the company was having enough cash in hand for handling any financial situation. But in case of HCL, the cash ratio was below 0.5 for financial years i.e. from 2008-10 so the company was not having enough cash with it during that financial years. While the company managed to maintain its cash ratio above 0.5 for other financial years. So the immediate cash available to the company to meet its short term obligations was there.
2007-08	1.67	0.73	0.96	
2008-09	1.88	0.47	1.27	
2009-10	1.70	0.36	1.68	
2010-11	1.64	0.51	1.70	

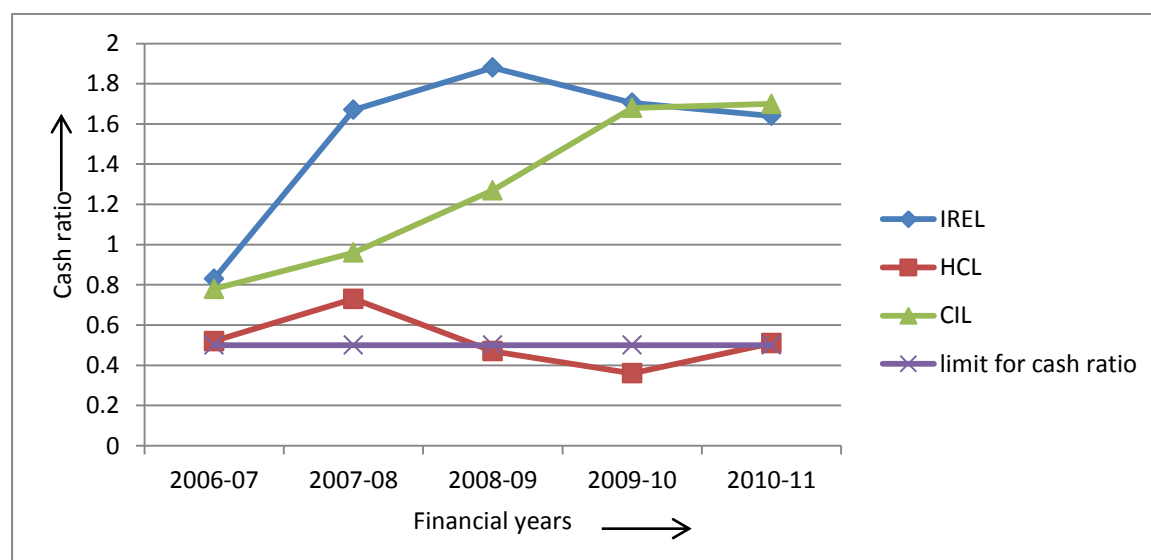


Fig. 5.2 Comparison of cash ratio for IREL, HCL and CIL

### 5.3 Gross profit margin

Table.5.3 Comparison of Gross profit margin for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	59	50.63	84.93	The gross profit obtained by CIL is significantly higher than IREL and HCL. It means that CIL was making huge profit as compared to other two companies. Gross profit of IREL varied between 55-59% so the company was making consistently good profit for all the years. In HCL, gross profit was too low in 2008-2009 i.e. 32.33%. The reason for this reduction of profit was the decrease of copper price in world market.
2007-08	55.9	45.05	81.08	
2008-09	58.1	32.33	90.51	
2009-10	55	48.56	92.07	
2010-11	58.44	73.24	98.12	

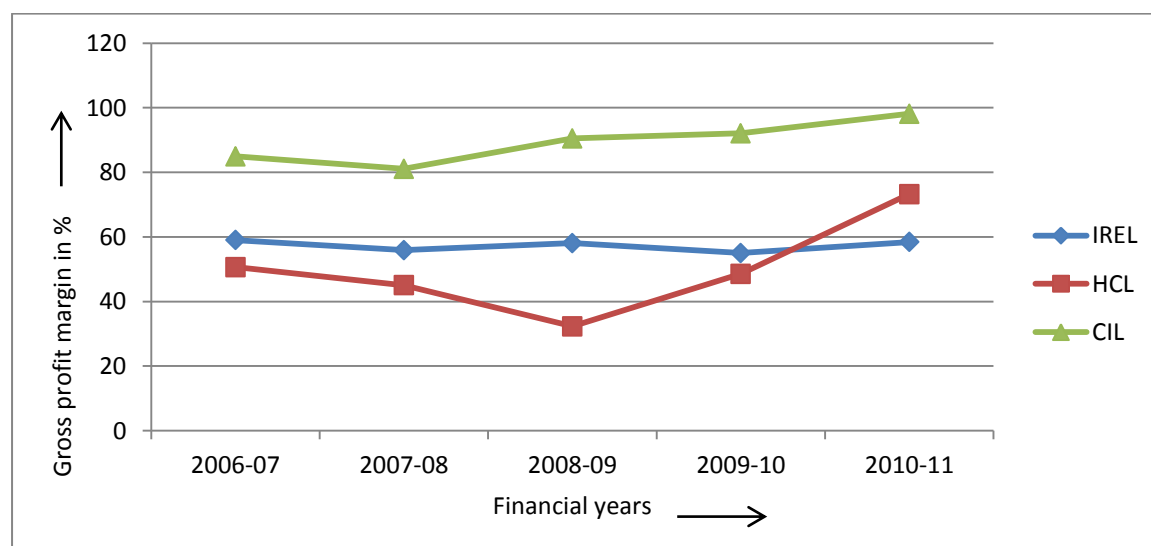


Fig. 5.3 Comparison of Gross profit margin for IREL, HCL and CIL

## 5.4 Operating profit margin

Table.5.4 Comparison of operating profit margin for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	26.24	29.42	-21.86	When comparing operating profit margin, it was seen that IREL was performing well by keeping the value above 25% during the financial years 2006-07 to 2008-09. In HCL the operating profit was very less in financial year 2008-09 due to sudden decrease in copper price in international market. But CIL operating expenses were so high that its operating profit margin was always negative.
2007-08	28.0	19.87	-52.15	
2008-09	25.15	-0.4	-47.72	
2009-10	14.2	19.75	-10.08	
2010-11	14.2	31.57	-19.20	

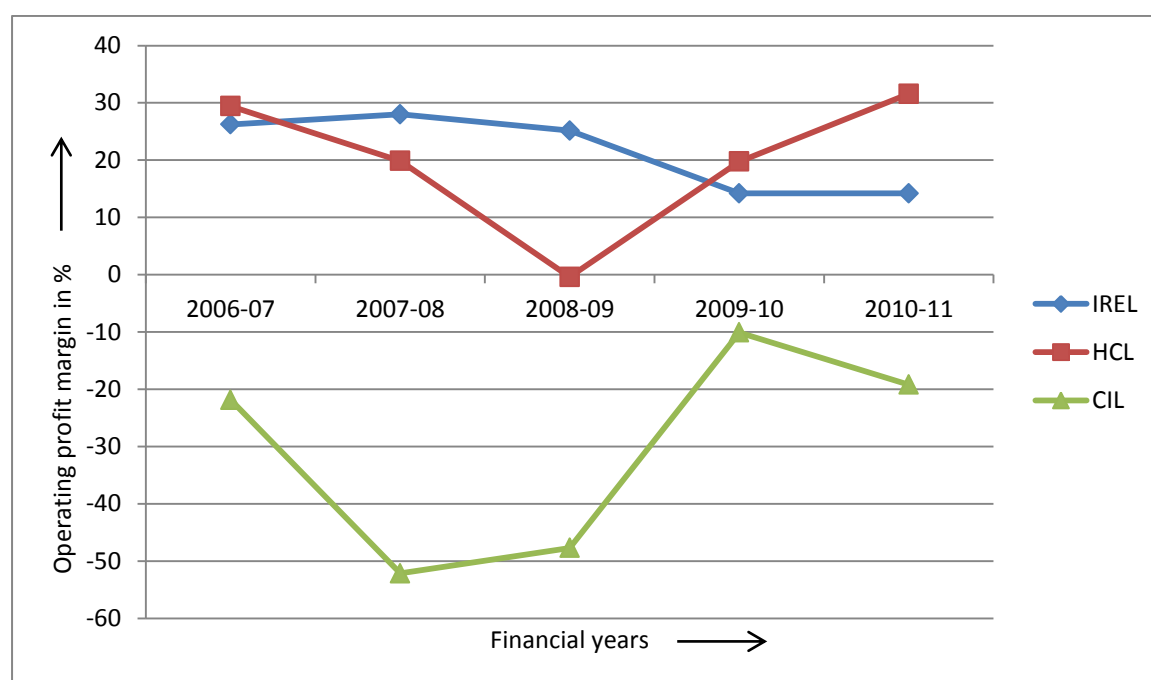


Fig. 5.4 Comparison of operating profit margin for IREL, HCL and CIL

## 5.5 Return on assets

Table 5.5 Comparison of Return on assets for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	12.05	19.94	15.16	Return on assets of IREL was very high in financial year 2007-08. While for HCL, return on assets was negative in financial year 2008-09 and the net profit obtained by the company was negative i.e. there was a loss during that financial year, for which ROA became negative. While CIL had maintained a good ROA during the financial years 2006-11 that meant CIL utilized its assets properly as compared to the other companies.
2007-08	26.81	11.45	12.66	
2008-09	9.2	-1.23	15.70	
2009-10	3.64	9.6	16.35	
2010-11	4.88	12.72	18.30	

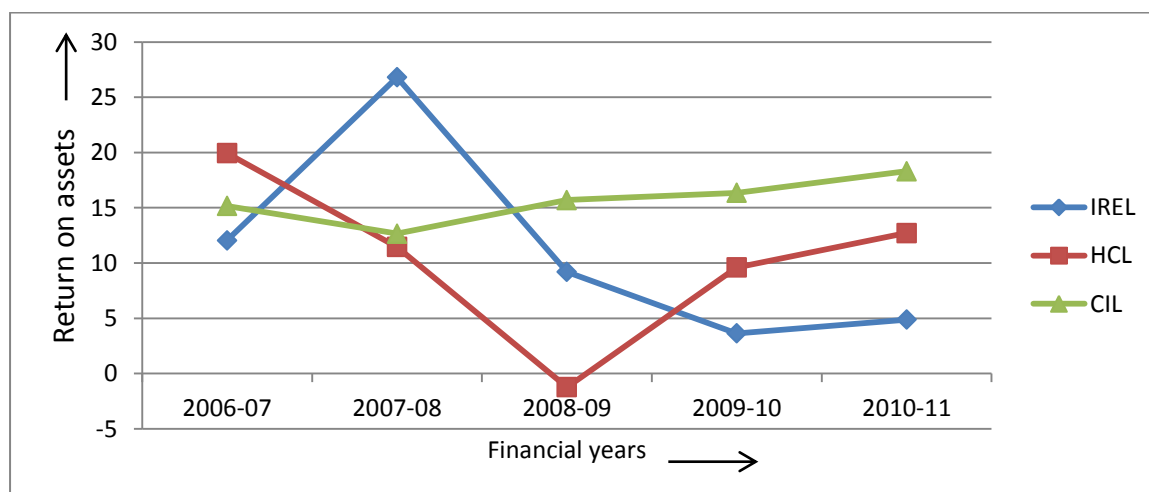


Fig. 5.5 Comparison of Return on assets for IREL, HCL and CIL

## 5.6 Return on investments

Table 5.6 Comparison of Return on investments for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	32.41	62.06	27.84	ROI of IREL was also good in 2006-09. ROI of HCL was very high in financial year 2006-07 and was very low in financial year 2008-09 due to decrease in copper price in world market. While CIL had maintained a good ROI during the financial years 2006-11 that meant CIL had utilized its investments properly.
2007-08	52.45	32.25	26.11	
2008-09	17.53	0.01	30.13	
2009-10	10.05	20.0	27.16	
2010-11	10.75	27.45	26.76	

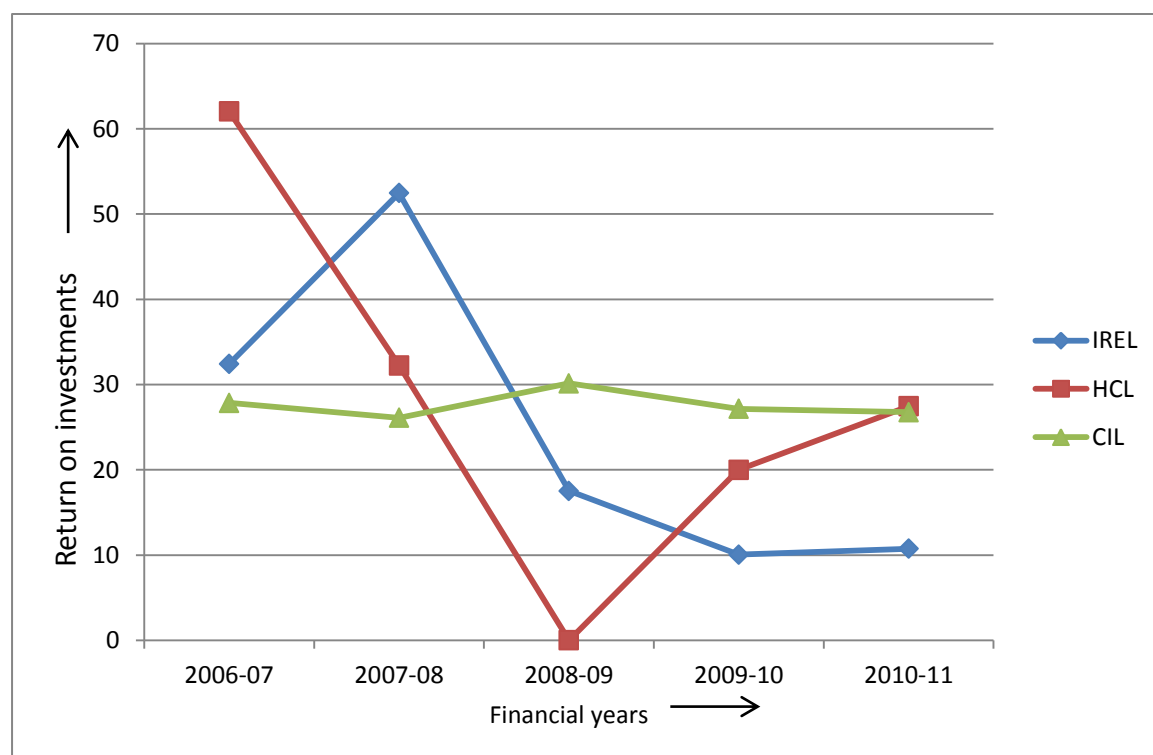


Fig. 5.6 Comparison of Return on investments for IREL, HCL and CIL

## 5.7 Debt ratio

Table 5.4 Comparison of debt ratio for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	0.53	0.6	0.34	The debt ratio of CIL and IREL was nearly equal in all the financial years except the financial year 2006-07 in which the debt ratio of Imelda's 0.53. HCL has decreased its debt ratio from 0.6 to 0.3 from financial year 2006-07 to 2009-10 but again rose to 0.353 from 0.3 in financial year 2010-11. It implies that the company borrowed some amount of money for expansion of its project.
2007-08	0.31	0.46	0.32	
2008-09	0.28	0.41	0.32	
2009-10	0.28	0.3	0.29	
2010-11	0.30	0.353	0.3	

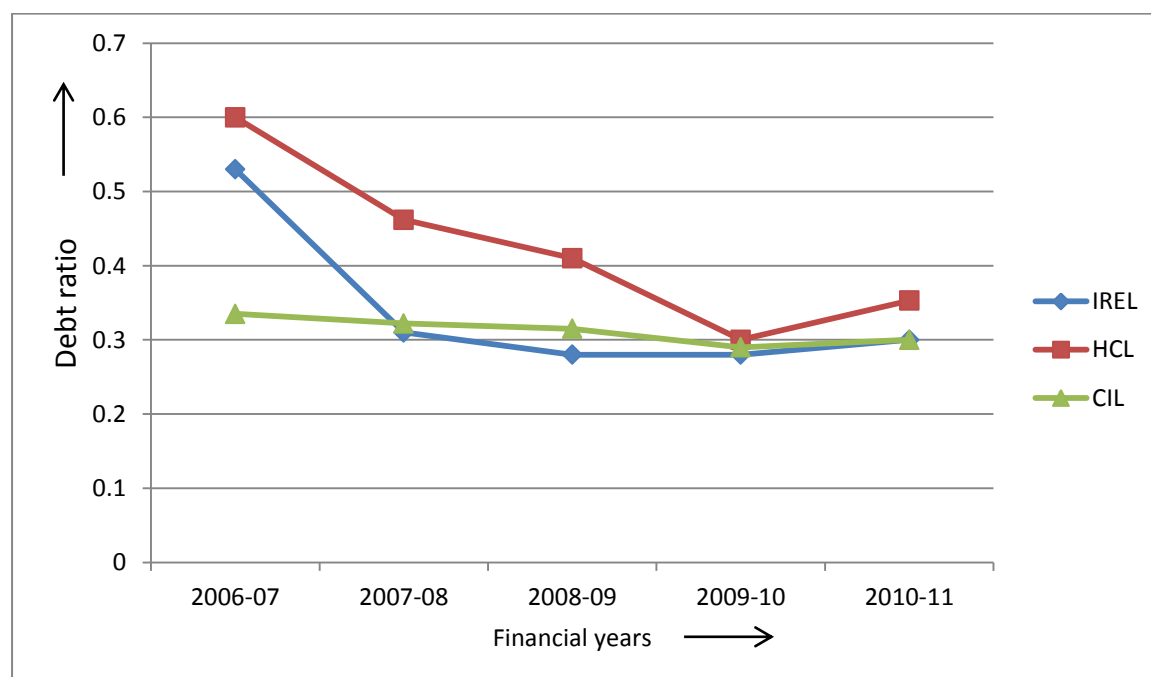


Fig. 5.7 Comparison of debt ratio for IREL, HCL and CIL



## 5.8 Fixed-Asset turnover ratio

Fig. 5.8 Comparison of Fixed asset ratio for IREL, HCL and CIL

Financial year	IREL	HCL	CIL	Remarks
2006-07	1.68	3.12	0.04	HCL had good fixed asset turnover ratio compared to other two companies as it was having very less fixed assets in initial years but later it decreased from 3.12 to 1.52 during 2006-07 to 2010-11. IREL maintained a good asset turnover ratio throughout. CIL turnover was very less as compared to its assets.
2007-08	1.41	2.98	0.04	
2008-09	1.68	2.07	0.05	
2009-10	1.67	1.89	0.07	
2010-11	1.9	1.52	0.07	

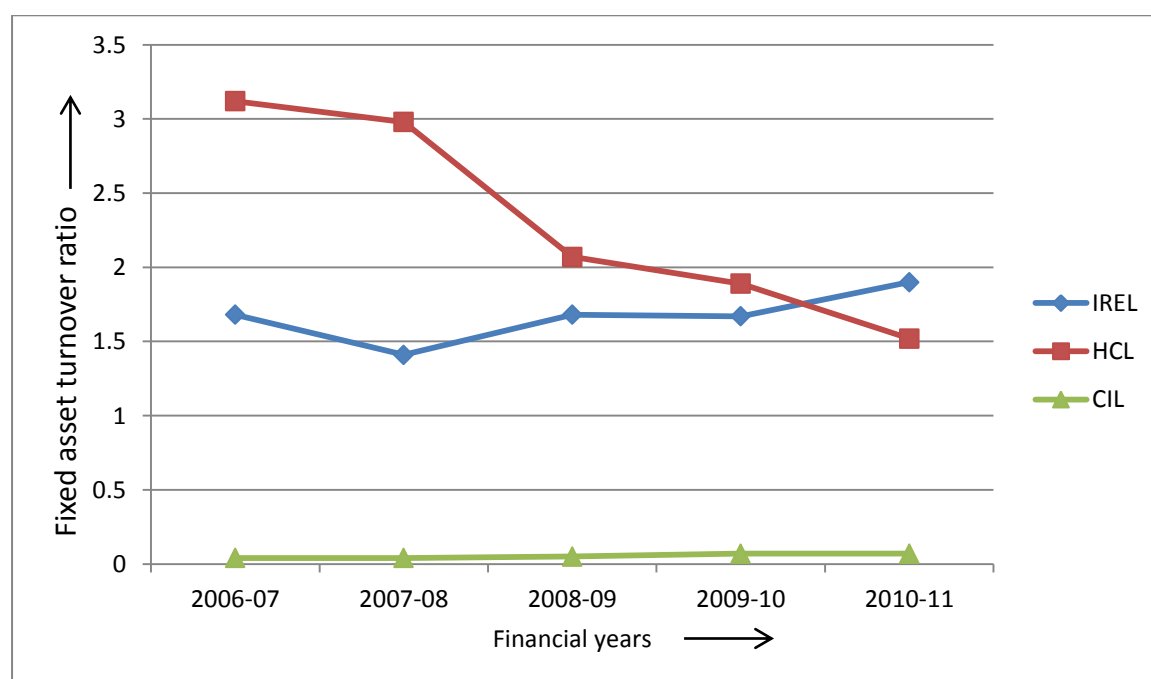


Fig. 5.8 Comparison of Fixed asset turnover ratio for IREL, HCL and CIL

## **CHAPTER-6**

### **CONCLUSION**

Analysis of financial statements is a significant tool in evaluating company's performance. It discloses the strengths and weaknesses of the company. It aids the traders to decide in which company the risk is less or in which one they should invest so that maximum benefit can be earned. It is known that investing in any company involves a lot of risk. So before putting up money in any company one must have thorough knowledge about its past records and performances. Based on the data available the trend of the company can be predicted in near future.

Computer programs were developed in Turbo C++ for the preparation and analysis of balance sheet and income statement. The program can be upgraded/modified using other software to enhance its applicability.

The project was mainly focused on detailed studies on financial statements of different coal and non-coal companies and calculation of financial ratios. Ratio analysis of three companies i.e. Indian Rare Earths Ltd. (IREL), Hindustan Copper Ltd. (HCL), Coal India Limited (CIL) and one coal mine of MCL (CIL) was carried out.

- From ratio analysis of IREL of financial year 2006-07 to 2010-11, it was found that the liquidity position of the company was strong. Current ratio, quick ratio, cash ratio, gross profit margin, debt ratio, debt equity ratio, capitalization ratio were good while operating profit margin, net profit margin are not satisfactory in the years 2006-07 and 2008-09. ROA and ROE was unsatisfactory except in 2007-08. Fixed asset turnover ratio and total asset turnover ratio were less in all the financial years.
- In HCL, the working capital, quick ratio, gross profit margin, debt ratio, debt-equity ratio and capitalization ratio were good whereas current ratio is not high. Cash ratio was reported to be less during financial years 2008-10. Operating profit margin, net profit margin, ROE, ROI, ROCE, Return on long term funds were overall good. The profit margin was low in financial year 2008-09 due to sudden fall in copper price in International market.

- For CIL, the working capital, current ratio, quick ratio, cash ratio, gross profit margin, net profit margin, ROE, ROI, ROCE, debt ratio, debt-equity ratio and capitalization ratio were good but the operating profit margin, fixed asset turnover ratio and total asset turnover ratio were not. The operating expenses of CIL were too high.
- For Lakhanpur coal mine area, MCL the financial ratios were calculated for 2008-09 to 2010-11. Working capital, current ratio, quick ratio and cash ratio, debt ratio, debt-equity ratio and capitalization ratio were not satisfactory. So the mine may face shortage of cash due huge debts. Gross profit margin, operating profit margin, net profit margin, ROE, ROI, fixed asset turnover ratio and total asset turnover ratio were reasonably good.

In this project, comparison of different ratios for three companies HCL, IREL and CIL was done for financial years 2006-07 to 2010-11.

- It was concluded that CIL was having very good financial condition in all the financial years and it could be seen that it was increasing as the financial year move ahead. HCL financial condition was not good as the value of current ratio of HCL could not reach to its limit. While IREL was having current ratio 1.41 in the year 2006-07 this showed the non-availability of cash but in other years the company maintained a well financial condition by keeping its current ratio above 2.
- Cash ratio of IREL was always good while CIL was having cash ratio below 1 for two consecutive financial years i.e. from 2006-08 but after that its cash ratio was above 1 hence the company was having enough cash in hand for handling any financial situation. But in case of HCL, the cash ratio was below 0.5 for financial years i.e. from 2008-10 so the company was not having enough cash with it during that financial years. While the company managed to maintain its cash ratio above 0.5 for other financial years
- The gross profit obtained by CIL is significantly higher than IREL and HCL. It means that CIL was making huge profit as compared to other two companies. Gross

profit of IREL varied between 55-59% so the company was making consistently good profit for all the years. In HCL, gross profit was too low in 2008-2009 i.e. 32.33%. The reason for this reduction of profit was the decrease of copper price in world market.

- When comparing operating profit margin, it was seen that IREL was performing well by keeping the value above 25% during the financial years 2006-07 to 2008-09. In HCL the operating profit was very less in financial year 2008-09 due to sudden decrease in copper price in international market. But CIL operating expenses were so high that its operating profit margin was always negative.
- Return on assets of IREL was very high in financial year 2007-08. While for HCL, return on assets was negative in financial year 2008-09 and the net profit obtained by the company was negative i.e. there was a loss during that financial year, for which ROA became negative. While CIL had maintained a good ROA during the financial years 2006-11 that meant CIL utilized its assets properly as compared to the other companies.
- ROI of IREL was also good in 2006-09. ROI of HCL was very high in financial year 2006-07 and was very low in financial year 2008-09 due to decrease in copper price in world market. While CIL had maintained a good ROI during the financial years 2006-11 that meant CIL had utilized its investments properly.
- The debt ratio of CIL and IREL was nearly equal in all the financial years except the financial year 2006-07 in which the debt ratio of IREL was 0.53. HCL has decreased its debt ratio from 0.6 to 0.3 from financial year 2006-07 to 2009-10 but again rose to 0.353 from 0.3 in financial year 2010-11. It implies that the company borrowed some amount of money for expansion of its project.
- HCL had good fixed asset turnover ratio compared to other two companies as it was having very less fixed assets in initial years but later it decreased from 3.12 to 1.52 during 2006-07 to 2010-11. IREL maintained a good asset turnover ratio throughout. CIL turnover was very less as compared to its assets.

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