

FINANCIAL ANALYSIS OF PANCHARATNA FEED PVT. LTD.

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RECOMMENDATION

This is to certify that the thesis

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Financial Analysis of Pancharatna Feed Pvt. Ltd.

has been prepared as approved by this department in the prescribed format of faculty of management. This thesis is forwarded for evaluation.

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DECLARATION

I hereby declare that the work done in this thesis entitled **Financial Analysis of Pancharatna feed Pvt. Ltd.** submitted to Birendra Multiple Campus, Faculty of management, Tribhuvan University is my original work. It is done in the form of partial fulfillments of the requirement of the degree of Master of Business Studies (M.B.S) under the supervision and guidance of Mr. Sudip Wagle and Mr. Ganga Prasad Sapkota, lecturer of Birendra Multiple Campus.

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ABBREVIATION

A/C	:	Account
ARR	:	Average Rate of Return
B.S.	:	Bikram Samwath
BEP	:	Break Even Point
CA	:	Current Assets
CL	:	Current Liabilities
CR	:	Current Ratio
D/E Ratio	:	Debt Equity Ratio
DPR	:	Dividend Payout Ratio
DPS	:	Dividend per Share
DTR	:	Debtor Turnover Ratio
EAT	:	Earning After Tax
EBIT	:	Earning Before Interest and Tax
EBT	:	Earning Before Tax
EPS	:	Earning Per Share
F/Y	:	Fiscal Year
G.P	:	Gross Profit
I.R.R.	:	Internal Rate of Return
ITR	:	Inventory Turnover Ratio
Ltd	:	Limited
NWC	:	New Working Capital
P & L A/c	:	Profit and Loss Account
PBP	:	Pay Back Period
PF	:	Pancharatna Feed
Pvt	:	Private
ROA	:	Return on Assets
ROCE	:	Return on Capital Employed
ROE	:	Return on Equity
SHE	:	Shareholders Equity
TATR	:	Total Assets Turnover Ratio
TIE	:	Time Interest Earned

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Financial analysis means the analysis of financial statement. It is the process of identifying the financial strength and weakness of the firm of properly establishing relationship between the items of the balance sheet and income statement. Financial statements analysis involves a comparison of a firm's performance with that of other firms in the same line of business. Generally speaking the analysis is used to determine the firm's financial position in order to identify its current strengths and weakness and suggest action that might enable the firm to take advantages of its strengths and correct its weakness.

"Financial analysis is the process of analyzing various items of financial statement of a firm to ensure its comparative strengths and weakness". – Poudel, (2009)

Financial statement analysis is important not only for the firm's manager but also for the firm's investor and creditor. Internally financial managers use the information provided by financial analysis to help make financing and investment decision to maximize the firm's value, externally, stockholders and creditors use financial statement analysis to evaluate the attractiveness of firm as an investment by examining its ability to meet its current and expected financial obligations.

A firm communicates financial information to the users through financial statements and reports. The financial statement contains summarized information of the firm's financial affairs, organized systematically. As these statements are used by investor and financial analysis to examine the firm's performance in order to make investment decision. The balance sheet and income statement are the two statement use to report financial position and performance of business firm.

The balance sheet is the statment of the firm assets or resources and owner's equity and liabilities or debt. It is also called the statment of the financial position of firm on a certain date. The income statement is statement the summarizing the firms revenues and expenses over an occurring period. It is also called profit and loss account. cash

flow statement is the statement of the cash inflow and outflow, which show the ability to generate cash.

Common size statement is a standardized financial statement, which shows the change in financial position by percentage over the year. It is often useful to express balance sheet and income statement items as percentage. It is the way of examining and evaluating the change in income, expenses, assets, liabilities, capital etc. expressing balance sheet on base of total assets and income statement on the base of sales in percentage this analysis is done taking balance sheet and income statement of two or more than two years period.

"The financial statement that expressed all items in percentage terms of some common standard items such as sales for income statement and total assets for balance sheet." – Poudel, (2009)

1.2 Focus of the Study

This study is based on the secondary data provided by the Pancharatna Feed, which focus to evaluate the financial analysis. The present study is applicable to know that the improvement is going on or not, firm's financial performance is the industry average or not etc. This study focus on financial strength and weakness of Pancharatna Feed. The main essence of this thesis is to give focus on financial strength and weakness of Pancharatna Feed, which is the main indicator of success and failure of this enterprise.

1.3 Statement of the Problem

The main objective of private enterprise to accelerate economic growth, to generate employment opportunity, to correct unfixable balance of payment by import substitutions, to help government for increase economic growth rate. Pancharatna feed has been functioning since last 20 years as private manufacturing enterprises.

Private enterprises faced many problems such as proper infrastructure problem, professional manpower problem. Investment environment, Investment policy etc. Nepalese government has not been paying attention in sufficient to encourage private investment.

Lack of information and knowledge is chief problem faced by investor who are manipulated and exploited by the private enterprises and their market intermediaries. Investor's invest their wealth on the basis of guesses and hunches because they do not have any information the financial assets and they also lack the idea to reach to ideal investment decision.

Beside their problems, the present study tries to answer the following questions:

1. What is the financial performance of the firm?
2. Is the present profitability of performance is adequate?
3. What is the liquidity position of the firm?

1.4 Objectives of the Study

The main objectives of this study are to find out financial status of position of Pancharatna feed on the basis of selective financial tools and techniques some specific objectives of this study are as follows:

1. To find out the financial performance of the firm.
2. To analysis present profitability of performance of the firm.
3. To find out the liquidity position of the firm.

1.5 Significance of the Study

The term finance refers to raising and spending of needed fund. Finance is the science of money and it is the life blood of business. Finance plays a very vital role in organization. The success and failure of any a organization depends upon how effectively fund has been utilized financial analysis is used to determine the firm's financial position in order to identify its current strength and weakness. Financial analysis help to make qualitative judgment about the firm's financial position, the performance and to point out areas for further investigation. The significance of the study are as follows:

1. It helps to analyze the liquidity position or the ability of the firm to meet its current obligations.
2. This study is useful for the manager in taking rational decision and making future plans.

3. This will also help to enable consumer and general public regarding to the real position of Pancharatna feed.
4. It is also useful for the researcher for research work.

1.6 Limitation of the Study

This study is to fulfill the requirement of master degree in business studies. In this study we have made an effort to cover manufacturing sector and study is concentrated only on financial structure of PF. The study has following limitation.

1. The research concern only financial position of Pancharatna feed.
2. The proposed study is based on the data of five years from the f/y 2064/2065 to 2068/2069.
3. The study is based on secondary data. Therefore, reliability of conclusion of the study is based on the accuracy of secondary data.
4. The main purpose of the study is to fulfill the requirement of MBS thesis.
5. Time and financial constraints are also major limitations of the study.

1.7 Organization of the Study

The study has been divided in to five chapters.

Chapter - I: Introduction and Background

This is the first chapter of this thesis writing. It dealt with the subject matter. It consisted of background of the study focus of the study, statement of the problem, objective of the study, significance of the study, limitations of the study and organization of the study.

Chapter-II: Review of Literature

This is the second chapter of the study. It included review of the literature obtained during the library searched. Review of literature is an essential aspect of all studies. It is a way to discover what other research in the area of our problem has uncovered. This chapter included the meaning of financial structure and related topics of the financial structure under the head of conceptual framework and review of major studies related to the financial structure under the head or review of earlier studies.

Chapter-III: Research Methodology

This is the third chapter the study. This chapter deals with the methodology used incurring out the study. It explained the methods used in the study. It included research design: source of data, data collation technique, method of presentation and analysis of data and general meaning of research methodology.

Chapter-IV: Data Presentation and Analysis

In this chapter the data has presented analyzed and interpreted so as to enquire into short term and long term financial position of PF and judge its profitability over given period of time.

Chapter-V: Summary, Conclusion and Recommendation

This final chapter in this chapter we have mentioned finding and conclusions of the study. Also we have given some valuable suggestions for the improvement in the working performance of the enterprise.

CHAPTER-II

REVIEW OF LITERATURE

This chapter has been divided into the following parts:

- 2.1 Review of conceptual framework
- 2.2 Review of related research work
- 2.3 Review of related dissertation
- 2.4 Research Gap

2.1 Review of Conceptual Framework

2.1.1 Concept of Financial Statement Analysis

A basic limitation of the traditional financial statement comprising the balance sheet and profit and loss account is that they do not give all the information regarding the financial operation of a firm. Nevertheless, they provide some extremely useful information to the balance sheet mirrors the financial position on a particular data in terms of the structure of assets, liabilities and owner's equity, etc and profit and loss account shows the results of operations during a certain period of time in terms of the revenues obtained and the cost incurred during the year. Thus, the financial statements provide a summarized view of the financial position and operation of the firm. Therefore, much can be learnt about a firm from a careful examination of its financial statements is, thus an important aid to financial analysis.

“Financial statement analysis is the art of transforming data from financial statements in to information that is useful for informed decision making”. – Horne, (2007)

The focus of financial analysis is on key figure in the financial statement and the significant relationship that exist between them. The analysis of financial statements is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance. The first task of the financial analyst is to select the information relevant to the division under consideration from the total information contained in the financial statements. The second step involved in financial analyst is to arrange the information

in a way to highlight significant relationships. In brief, financial statement analysis is the process of selection, relation and evaluation.

“Financial statement contains summarized information of the firm’s financial affairs organized systematically”. – I.M. Pandey, (1987)

Financial statement is prepared from the accounting records maintained by the firm. The generally accepted accounting principles and procedure are followed to prepare these statements. As stated earlier, the basic objective of financial statements is to assist in decision making. The financial statements are the basic instruments of an accounting system to communicate financial information to users. Balance sheet shows the financial condition or the state of the firm at a particular point of time. More specifically, balance sheet contains detailed information about the firm’s assets and liabilities. Assets represent economic resources possessed by the firm.

The present study is developed to an in-depth analysis of financial statements and its use for decision-making by various parties interested in them. The focus of the study is on ratio analysis as the most widely used technique of financial statement analysis.

I) Liquidity Ratio

The importance of adequate liquidity in the sense of the ability of a firm to meet current/short-term obligation when they become due for payment can hardly be overstressed. In fact liquidity is a pre-requisite for the very survival of a firm. The short-term creditors of the firm are interested in the short-term solvency or liquidity of the firm. But liquidity implies, from the viewpoint of utilization of the funds of the firm, that funds are idle or they earn very little. A proper balance between the two contradictory requirements, i.e. liquidity and profitability is required for efficient financial management. The liquidity ratio measures the ability of a firm to meet its short-term obligations and reflect the short-term financial strength/solvency of a firm. The ratios, which indicate the liquidity of a firm, are: (a) Net working capital, (b) Current ratio and (c) Acid test ratio.

a) Net working Capital (NWC)

NWC represents the excess of current assets over current liabilities. The term current assets refers to assets which in the normal course of business get converted into cash over a short period, usually not exceeding one year. Current liabilities are those liabilities, which are required to be paid in short period, normally a year. Although NWC is really not a ratio, it is frequently employed as a measure of a company's liquidity position. An enterprise should have sufficient NWC in order to meet the claims of the creditors and meeting the day-to-day needs of business. The greater the amount of NWC, the greater will be the liquidity of the firm. Inadequate working capital is the first sign of financial problems for a firm.

b) Current Ratio

The current ratio is the ratio of total current assets to total current liabilities. It is calculated by dividing current assets by current liabilities.

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

The current assets of a firm, as already stated, represent those assets which can be, in the ordinary course of business, converted into cash within a short period of time, normally not exceeding one year and include cash and bank balances, marketable securities, inventory of raw material, work in progresses and finished goods, debtors net of provision for bad debts, bills receivable and pre-paid expenses. The current liabilities are defined as liabilities which are short-term maturing obligation to met, as originally contemplated, within a year, consist of trade creditors, bills payable, bank overdraft, provision for taxation, provision for dividend and outstanding expenses.

The current ratio of a firm measures its short-term solvency, i.e. its ability to meet short-term obligations. It is a measure of short term/current financial liquidity; it indicates the rupees of current assets available for each rupee of current liability/obligation. The higher the current ratio, the larger the amount of rupees available per rupee of current liability, the more the firm's ability to meet current obligations and the greater the safety of funds of short term creditors. Thus, current ratio, in away, is a measure of margin of safety to the creditors. It is important on note

that a very high ratio of current assets to current liabilities may be indicative of slack management practice, as it might signal excessive inventories for the current requirements and poor credit management in terms of over extended account receivable. At the same time, the firm may not be making full use of its current borrowing capacity. Therefore, a firm should have a reasonable current ratio.

c) **Quick Ratio**

As observed above, one defect of the current ratio is that it fails to convey any information on the composition of the current assets of a firm. A rupee of cash is considered equivalent to a rupee of inventory or receivable. But it is not so. A rupee of cash is more readily available (i.e. more liquid) to meet current obligations than a rupee of, say, inventory. This impairs the usefulness of the current ratio. The acid-test ratio is a measure of liquidity designed to overcome this defect of the current ratio. It is often referred to as quick ratio because it is a measurement of a firm's ability to convert its current assets quick into cash in order to meet its current liabilities. Thus, it is a measure of quick or acid liquidity.

The acid-test ratio is the ratio between quick current assets and current liabilities and is calculated by dividing the quick assets by the current liabilities:

$$\text{Acid - test ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

The term quick assets refer to current assets, which can be converted into, cash immediately or at a short notice without diminution of value. Included in this category of current assets are (i) cash and bank balances; (ii) short term marketable securities and (iii) debtors/receivable. E current assets, which are excluded, are: pre-paid expenses and inventory. The exclusion of inventory is based on the reasoning that it is not easily and readily convertible into cash. Pre-paid expenses by their very nature are not available to pay off current debts. They merely reduce that amount of cash required in one period because of payment in a prior period.

II) **Capital Structure/Leverage Ratio**

Capital structure ratio is observed as different parties are interested and participated in the financial statement. The long term creditors would judge the soundness of the firm

on the basis of the long term financial strength measured in term of its ability to pay the interest regular as well as repay the instatement of the principal on due dates or in all lump sum at the tie of maturity. The capital structure ratio may be defined as financial ratios which throw the light on the long term solvency of a firm reflected in its ability to assure the long term creditors with regards to (i) periodic payment of interest during the period of loan (ii) repayment of principal on maturity or in pre-determined installments at due date.

The help of the following ratios could analyze the capital structure:

a) Debt Equity Ratio (D/E Ratio)

The relationship between borrowed funds and owner's equity is a popular measure of the long-term financial solvency of a firm. The debt equity ratio reflects the relative claims of creditors and shareholders against the assets of the firm. Alternatively, the ratio indicates the relative proportions of debt and equity in financing the assets of a firm. The relationship between outsider's claim and owner's claim can be shown in different ways.

One approach is to express the D/E ratio in terms of the relative proportion of long-term debt and shareholder's equity thus,

$$D / E \text{ Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholder's Equity}}$$

The debt considered here is exclusive of current assets. The shareholder's Equity includes (i) Equity and preference share capital. (ii) Past accumulated profit (iii) but excludes fictitious assets like past accumulated losses discount on issue of share and debenture etc.

Another approach to the calculation of the debt equity ratio is to relate the total debt to the shareholder's equity. That is,

$$D / E = \frac{\text{Total Debt}}{\text{Shareholder's Equity}}$$

The D/E Ratio is, thus, the ratio of total outsiders' liabilities to owner's total fund. In other words, it is the ratio of the amount invested by outsiders to the amount invested by the owners of the business.

The difference between this and the first approach is essentially in respect of the treatment of current liabilities. While the former excludes them, later-include them in the numerator. Should current liabilities be included in the amount of debt to calculate the D/E Ratio? While there is no doubt that current liabilities are short term and the ability of a firm to meet such obligation reflected in the liquidity ratios, their amount fluctuates widely during a year and interest payment on that are not large, they should form part of the total outside liability to determine the ability of a firm to meet its long term obligation for number of reasons.

b) Debt to Total Capital Ratio

The relationship between creditor funds and owner's capital can be also expressed in terms of another leverage ratio. Here, the outside liabilities are related to the total capitalization of the firm and not merely to the shareholder's equity. Essentially this type of capital structure ratio is a variant of the D/E ratio described above. It can be calculated in different ways:

One approach is to calculate the long-term debt to the permanent capital of the firm. Included in the permanent capital are shareholder's funds as well as long-term debt.

Thus,

$$\text{Debt to total capital ratio} = \frac{\text{Long Term Debt}}{\text{Permanent Capital}}$$

C) Coverage Ratio

These ratios are computed from information available in the profit and loss account. For a normal firm, in the ordinary course of business, the claims of creditors and not met out of the sale proceeds of the permanent assets of the firm. The obligations of a firm are normally met out of the earnings of operating profits. These claims consist of (i) interest on loan (ii) preference dividend, and (iii) amortization of principal or repayment of the installment of loans or redemption of preference share capital on

maturity. The soundness of a firm, from the viewpoint of long-term creditors, lays in its ability to service their claims. These abilities are indicated by the coverage ratios. The coverage ratios measure the relationship between what is normally available from operations of the firms and the claims of the outsiders. The important coverage ratios are as follows:

1) Interest Coverage Ratio

It is also known as “time interest earned ratio”. This ratio measures the debt servicing capacity of a firm in so far as fixed interest on long term loan is concerned.

It is determined by dividing the operating profit or earning before interest and taxes (EBIT) by the fixed interest charges on loan thus,

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

It should be noted that this ratio uses concept of net profit before taxes because interest is taxed deductible so that tax is calculated after paying interest on long-term loan. This ratio, as the name suggests, shows how many times the interest charges are covered by the EBIT out of which they will be paid. In other word, it indicates the extent to which a fall in EBIT is tolerable in the sense that the ability of the firm to service its debt would not be adversely affected. For instance, an interest coverage of 10 times would imply that even if the firm’s EBIT were to decline to one-tenth of the present level, the net profit available for servicing that interest on loan would still be equivalent to the claims for the creditors. On the other hand, a coverage of five times would indicate that a fall in operating earning to only up to one-fifth level can be tolerated. From the point of view of the creditors, the larger the coverage, the greater the ability of the firm to handle fixed charge liabilities and the more assured the payment of interest to the creditors.

2) Dividend Coverage Ratio

It measures the ability of a firm to pay dividend on preferences share, which carry a stated rate of return. This ratio is the ratio of net profit after tax (EAT) and the amount of preference dividend. Thus,

$$\text{Dividend Coverage Ratio} = \frac{EAT}{\text{preference dividend}}$$

It can be seen that although preference dividend is a fixed obligation but the earning taken into account is after taxes. This is because, unlike debt on which interest is a charge on the net profits of the firm, the preference dividend is treated as an appropriation of profit. The ratio, like the interest coverage ratio, reveals the safety margin available to the preference shareholders. As rule the highest the coverage, the better it is from their point of view.

III) Profitability Ratio

Apart from the creditors, both short-term and long-term, also interested in the financial soundness of a firm are the owners and management or the company itself. The management of the firm is naturally eager to measure its operating efficiency. Similarly, the owners invest their funds in the expectation of reasonable return. The operating efficiency of a firm and its ability to ensure adequate return to ties shareholders depends ultimately on the profits earned by it. The crucial importance of profits of a firm can not be over stressed. Profitability is a measure of efficiency and the search for it provides an incentive to achieve efficiency. Profitability also indicates public acceptance of the product and shows that the firm can produce competitively. Moreover, profits provide the money for repaying the debt incurred to finance the project and the resources for the internal financing of expansion. The profitability of a firm can be measured by its profitability ratios. In other words, the profitability ratios are designed to provide answers to questions such as (i) is the profit earned by the firm adequate? (ii) What rate of return does it represent? (iii) What is the rate of profit for various divisions and segments of the firm? (iv) What is the earning per share? (v) What amount was paid in dividends? (vi) What is the rate of return to equity holders? And so on.

Profitability ratios can be determined on the basis of either sales or investments. The profitability ratios in relation to sales are (a) profit margin (gross and net), (b) expenses ratio or operating ratio. Profitability in relation to investments is measured by (a) return on assets, (b) return on capital employed, and (c) return on shareholders' equity. These are discussed in detail in this section.

A) Profitability Ratio Related to Sales

These ratios are based on the premise that a firm should earn sufficient profit on each rupee of sales. If adequate profits are not earned on sales, there will be difficulty in meeting the operating expenses and no returns will be available to the owners. As observed already, these ratios consist of (i) profit margin, and (ii) expenses ratios.

Profit Margin

The profit margin measures the relationship between profit and sales. As the profits may be gross or net, there are two types of profit margin: Gross profit margin and Net profit margin.

Gross Profit Margin

This is also known as gross margin. It is calculated by dividing gross profit by sales. Thus,

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Sales}} \times 100$$

Since gross profit=sales –cost of goods sold, the gross profit margin can also be calculated as follows:

$$\text{Gross profit margin} = \frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}} \times 100$$

If the sales of a firm amount to Rs. 40,00,000 and its gross profits are Rs. 10,00,000, the gross margin would be 25% (Rs. 10,00,000÷Rs. 40,00,000). If the gross margin (25%) is deducted from 100, the result (75%) is the ratio of cost of goods sold to sales. The former measures profits in relation to sales, while the latter reveals the relationship between cost of production and sale price.

Gross profit is the result of the relationship between prices, sales volume and costs. A change in the gross margin can be brought about by changes in any of these factors. The gross margin represents the limit beyond which fall in sales price are outside the tolerance limit. Further, the gross profit ratio can also be made use of in determining

the extent of loss caused by theft, spoilage, damage, etc in the case of those firms, which follow the policy of fixed gross profit margin in pricing their products.

A high ratio of gross profits to sales is a sign of good management as it implies that the cost of production of the firm is relatively low. It may also be indicative of a higher sales price without a corresponding increase in the cost of goods sold. It is also likely that cost of sales might have declined without a corresponding decline in sales price. Nevertheless, a very high and rising gross margin may also be the result of unsatisfactory basis of valuation of stock-over-valuation of closing stock and/ or under valuation of operating stock. A thorough investigation of the factors having a bearing on the high gross margin is called for.

A relatively low gross margin is definitely a danger signal, warranting a careful and detailed analysis of the factors responsible for it. The important contributory factors may be (i) a high cost of production reflecting acquisitions of raw material and other inputs on unfavorable terms, inefficient utilization of current as well as fixed assets, and so on; and (ii) a low selling price resulting from severe competition, inferior quality of the product, lack of demand, etc.

A firm should have a reasonable gross margin to ensure adequate coverage for operating expenses of the firm and sufficient return to the owners of the business, which is reflected in the net profit margin.

Net Profit margin

This ratio is also known as net margin. It measures the relationship between net profits and sales of a firm. Depending on the concept of net profit employed, this ratio is computed in two ways:

$$\text{i) Operating Profit Ratio} = \frac{\text{Earning before interest and taxes (EBIT)}}{\text{Sales}}$$

$$\text{ii) Net profit ratio} = \frac{\text{Earnings after interest and taxes (EAT)}}{\text{Sales}}$$

The net profit margin is indicative of management's ability to operate the business with sufficient success not only to recover from revenues of the period, the cost of

merchandise or services, the expenses of operating the business (including depreciation) and the cost of the borrowed funds, but also to leave a margin of reasonable compensation to the owners for providing their capital at risk. The ratio of net profit (after interest and taxes) to sales essentially expresses the cost price effectiveness of the operation.”

A high net profit margin would ensure adequate return to the owners as well as enable a firm to withstand adverse economic condition when selling price is declining, cost of production is rising and demand for the product is falling.

A low net profit margin has the opposite implications. However, a firm with a low profit margin can earn a high rate of return on investments if it has a higher inventory turnover. This aspect is covered in detail in the subsequent discussion. The profit margin should therefore, be evaluated in relation to the turnover ratio. In other word, the over-all rate of return is the product of the net profit margin and the investment turnover ratio. Similarly, the gross profit margin and net profit margin should be jointly evaluated. The need for joint analysis arises because the two ratios may show different trends. For example, the gross margin may show a substantial increase over a period of time but the net profit may (i) have remained constant, or (ii) may not have increased as fast as the gross margin, or (iii) may actually have declined. It may be due to the fact that the increase in the operating expenses may be more than proportionate to sales or some of the operating expenses individually may behave abnormally. On the other hand, if either as whole or individual items of operating expenses decline substantially, a decrease in gross margin may be associated with an improvement in the net profit margin.

Expenses Ratio

Another profitability ratio related to sales is the expenses ratio. It is computed by dividing expenses by sales. The term ‘expenses’ includes (i) cost of goods sold, (ii) administrative expenses, (iii) selling and distribution expenses but is exclusive of financial expenses like interest, taxes, dividend and extra-ordinary losses due to theft of goods, goods destroyed by fire and so on.

There are different variants of expenses ratio. That is,

- i) Cost of goods sold ratio = $\frac{\text{Cost of Goods Sold}}{\text{Net Sales}} \times 100$
- ii) Administrative expenses ratio = $\frac{\text{Administrative expenses}}{\text{Net Sales}} \times 100$
- iii) Selling expenses ratio = $\frac{\text{Selling expenses}}{\text{Net sales}} \times 100$
- iv) Operating ratio = $\frac{\text{Cost of goods sold} + \text{Operating expenses}}{\text{Net sales}} \times 100$
- v) Financial expenses ratio = $\frac{\text{Financial expenses}}{\text{Net Sales}} \times 100$

Interpretation of Expenses Ratio

The expenses ratio is, in a way, reciprocal of the profit margin, gross as well as net. For instance, if the operating profit margin is deducted from 100%, the resultant is the operating ratio. Alternatively, when the operating ratio is subtracted from 100%, we get the profit margin. If the sale and total expenses of a firm are Rs. 40,00,000 and Rs. 32,00,000 respectively, the operating ratio would be 80%. It implies that total operating expenses including cost of goods sold consume 80% of the sales receipts of the firm and 20% is left for meeting interest, tax and dividend liabilities as also retaining profits for profits future expansion. The cost of goods sold ratio shows what percentage share of sales is consumed by cost of goods sold and, conversely, what proportion is available for meeting expenses such as selling and general distribution expenses as well as financial expenses consisting of-taxes interest and dividends and so on.

The expenses ratio is, therefore, very important for analysis the profitability of a firm. It should be compared over a period of time with the industry average as well as well as firms of similar type. As a working proposition, a low ratio is favorable while a high one is unfavorable. The implication of a high expenses ratio is that only a relatively small percentage share of sales is available for meeting financial liabilities like interest, tax and dividends, etc. An analysis of the factors responsible for a low ratio may reveal changes in the selling prices or the operating expenses. It is likely

that individual items may behave differently. While some operating expenses may show a rising trend, others and record a fall. The specific expenses ratio for each of the items of operating cost may be calculated. These ratios would identify the specific cause. To illustrate, an increase in selling expenses, may be due to a number of reasons; (i) general rise in selling expenses, (ii) inefficiency of the marketing department leading to uncontrolled promotional and other expenses, (iii) growing competition, (iv) ineffective advertising, (v) inefficient utilization of resources, and so on.

A low operating ratio is by and large a test of operational efficiency. In case of firms whose major source of income and expenses are non-operating, the operating ratio, however, cannot be used as a yardstick of profitability.

To conclude, the profitability ratios based on sales are an important indicator of the operational efficiency of manufacturing enterprise. However, they suffer from a serious limitation in that they are not useful from the viewpoint of the owners of the firm.

b) Profitability Ratio Related to Investments: Return on Investments (ROI)

As already observed, the profitability ratios can also be computed by relating the profits of a firm to its investments. Such ratios are popularly termed as return on investment (ROI). We illustrate in this section some of the important and widely used ROIs.

There are three different concepts of investments in vogue in financial literature: assets, capital employed and shareholders' equity. Based on each of them, there are three broad categories of ROIs. They are: (a) return on assets (b) return on capital employed, and (c) return on shareholders' equity.

Return on Assets (ROA)

Here, the profitability ratio is measured in terms of the relationship between net profits and assets. The ROA may also be called profit to-assets ratio. There are various approaches possible to define net profits and assets, according to the purpose

and intent of the calculation of the ratio. Depending upon how these two terms are defined, many variations of ROA are possible.

The concept of net profit may be (i) net profits after taxes, (ii) net profits after taxes plus interest, and (c) net profits after taxes plus interest minus tax saving.

Assets may be defined as (i) total assets, (ii) fixed assets, and (iii) tangible assets. The different variants of the ROA are illustrated below:

$$\text{i) Return on assets (ROA)} = \frac{\text{Net Profit after taxes}}{\text{Average total assets}}$$

The ROA based on this ratio would be an under-estimate as the interest paid to the creditors is excluded from the net profits. In point of fact, the real return on the total assets is the net operating earnings including interests. A more reliable indicator of the true return on assets is the net profits inclusive of interest.

$$\text{ii) ROA} = \frac{\text{Net profit after taxes} + \text{interest}}{\text{total assets}}$$

The ROA measure the profitability of the total funds/investments of a firm. It, however, throws no light on the profitability of the different sources of funds, which finance the total assets. These aspects are covered by other ROIs.

Return on Capital Employed (ROCE)

The ROCE is the second types of the ROI. It is similar to the ROA except in one respect. Here the profits are related to the total capital employed. The term capital employed refers to long-term funds supplied by the creditors and owners of the firm. It can be computed in two ways. First, it is equal to non-current liabilities (long-term liabilities) plus owners' equity. Alternatively, it is equivalent to net working capital plus fixed assets. Thus, the capital employed basis provides a test of profitability related to the sources of long term funds. A comparison of this ratio with similar firms, with the industry average and over time would provide sufficient insight into how efficiently the long-term funds of owners and creditors are being used. The higher the ratio, the more efficient is use of the capital employed.

The ROCE can be computed in different ways, using different concepts of profit and capital employed. Thus,

$$i) \quad ROCE = \frac{\text{Net profit after taxes}}{\text{Average total capital employed}}$$

Return on Shareholders' Equity

This profitability ratio carries the relationship of return of the sources of funds yet another step further. While the ROCE express the profitability of a firm in relation to the funds supplied by the creditors and owners taken together, the return on shareholders' equity measures exclusively the return on the owner's funds.

The shareholders of a firm fall into the broad groups: preference shareholders are equity shareholders. The holders of preference shares enjoy a preference over equity holders in respect of receiving dividends. In other words, from the net profits available to the shareholders, the preference dividend is paid first and whatever remains belongs to the ordinary shareholders. The profitability ratios based on shareholders' equity are termed as Return on shareholders' equity. There are several measures to calculated the return to shareholders: (i) rate of return on; (a) total shareholders' equity, (b) equity of ordinary shareholders, (ii) earning per share, (iii) dividends per share; (iv) dividends per share; (iv) dividend pay out ratio; (v) dividend and earning yield; (vi) price earning ratio.

Return Total Shareholders' Equity

According to this ratio, profitability is measured by dividing the net profit after taxes (but before preference dividend) by the average total shareholders' equity. The term shareholders' equity includes (i) preference share capital; (ii) ordinary shareholders' equity consisting of (a) equity share capital, (b) share premium, (c) reserves and surplus less accumulated losses. The ordinary shareholders' equity is also referred to as net worth. Thus,

$$\text{Return on total shareholders' equity} = \frac{\text{Net Profit after taxes}}{\text{total Shareholders' equity}}$$

The ratio reveals how profitably the firm has utilized the owners' funds. A comparison of this ratio with that of similar firms as also with the industry average will throw light on the relative performance and strength of the firm.

Return on Ordinary Shareholders' Equality (Net Worth)

While there is no doubt that the preference shareholders are also owners of a firm, the real owners are the ordinary shareholders who bear all the risk, participate in management and are entitled to all the profits remaining after all outside claims including preference dividend are met in full. The profitability of a firm from the owner's point of view should, therefore, in the fitness of things be assessed in terms of the return to the ordinary shareholders. The ratio under reference serves this purpose.

It is calculated by dividing the profits after taxes and preference dividend by the average equity of the ordinary shareholders. Thus,

$$\text{Return on equity funds} = \frac{\text{Net profit after taxes} - \text{Preference dividend}}{\text{Ordinary shareholders' equity or net worth}}$$

This is probably the single most important ratio to judge whether the firm has earned a satisfactory return for its equity holders or not. It would be recalled that the objective of financial management is to maximize the return to the owners. Its adequacy can be judged by (i) comparing it with the past record of the same firm, (ii) inter-firm comparison, and (iii) comparison with the over-all industry average. The rate of return on ordinary shareholders' equity is of crucial significance in ratio analysis from the point of the owners of the firm. Apart from this, other measures are also available to assess the profitability from the owner's viewpoint. These are explained below.

Earnings Per Share (EPS)

Apart from the rates of return, the profitability of a firm from the point of view of the ordinary shareholders is the EPS. It measures the profit available to the equity holders on a per share basis, i.e. the amount that they can get on every share held. It is calculated by dividing the profits available to the shareholders by the number of the

outstanding shares. The profits available to the ordinary shareholders are represented by the profits after taxes and preference dividend. Thus,

$$\text{EPS} = \frac{\text{Net profit available to equity holders}}{\text{Number of ordinary shares outstanding}}$$

EPS is a widely used ratio. Yet, EPS as a measure of profitability of a firm from the owner's point of view should be used cautiously as it does not recognize the effect of increase in equity capital as a result of retention of earning. In other words, if EPS has increased over the years, it does not necessarily follow that the firm's profitability has improved because the increased profits to the owners may be the effect of an enlarged equity capital as a result of profit retentions, though the number of ordinary shares outstanding still remains constant. Another limitation of EPS is that it does not reveal how much is paid to the owners as dividends nor how much of the earnings are retained in the business. It only shows how much "theoretically" belongs to the ordinary shareholders.

As a profitability ratio, the EPS can be used to draw inferences on the basis of (i) its trend over a period of time, (ii) comparison with the EPS of other firms, and (iii) comparison with the industry average.

Dividend Per Share (DPS)

The EPS represents what the owners are theoretically entitled to receive from the firm. A part of the net profits belonging to them is retained in the business and the balance is paid to them as dividends. The dividend paid to the shareholders on a per share basis is the DPS. In other words, DPS is the net distributed profit belonging to the shareholders divided by the number of ordinary shares outstanding. That is,

$$\text{DPS} = \frac{\text{Earning Available for Equity Share}}{\text{Number of ordinary shares outstanding}}$$

The shareholders have a definite preference for dividends relative to retention of earnings. The DPS would be a better indicator than EPS as the former shows what the owners exactly receive. Like the EPS, the DPS also should not be taken at its face value, as the increased DPS may not be a reliable measure of the profitability as the

equity base may have increased due to increased retention without any change in the number of outstanding shares.

Dividend Pay Out Ratio (DPR)

It is also known as pay out ratio. It measures the relationship between the earnings belonging to the ordinary shareholders and the dividend paid to them. In other words, the DPR ratio shows what percentage share of the net profits after taxes and preference dividend is paid out as dividend to the equity holders. It can be calculated by dividing the total dividend paid to the owners by the total profits/earnings available to them. Alternatively, it can be found out by dividing the DPS by the EPS. Thus,

$$\text{i) } \text{DPR} = \frac{\text{Total dividend to equity holders (Cash dividend)}}{\text{Total net profit belonging to equity holders}}$$

$$\text{ii) } \text{DPR} = \frac{\text{Dividend per ordinary share (DPS)}}{\text{Earnings per share (EPS)}}$$

The DPR ratio is an important and widely-used ratio. Investors have a marked preference for higher DPR ratio. The payout ratio can be compared with the trend over the years or an inter-firm and intra-industry comparison would throw light on its adequacy.

Earnings and Dividend Yield

Another profitability ratio from the point of view of the ordinary shareholders is the earnings and dividend yield. It is closely related to EPS and DPS. While the EPS and DPS are based on the book value per share, the yield is expressed in terms of the market value per share. The earnings yield may be defined as the ratio of earnings per share to the market value per ordinary share. Similarly, the dividend yield is calculated by dividing the cash dividends per share by the market value per share. That is,

$$\text{i) } \text{Earning Yield} = \frac{\text{EPS}}{\text{Market value per share}}$$

$$\text{ii) } \text{Dividend Yield} = \frac{\text{DPS}}{\text{Market value per share}}$$

The earning yield is also called the earning-price-ratio.

Price Earnings Ratio (P/E)

The P/E ratio is closely related to the earnings yield/earnings price ratio. It is actually the reciprocal of the latter. This ratio is computed by dividing the market price of the shares by the EPS. Thus,

$$\text{P/E ratio} = \frac{\text{Market price of a share}}{\text{EPS}}$$

The P/E ratio reflects the price currently being paid by the market for each rupee of currently reported EPS. In other words, the P/E ratio measures investors' expectations and the market appraisal of the performance of a firm. In estimating the earnings, therefore, only normally sustainable earnings associated with assets are taken into account. That is, the earnings are adjusted for income from, say, discontinued operations and extra-ordinary items as well as many other items not expected to occur. As a general rule, the higher the P/E ratio, the better it is for the owners. Security analysts to assess a firm's performance as expected by the investors popularly use this ratio.

Earning Power-Overall Profitability

The various profitability ratios discussed above throw light on the profitability of a firm from the viewpoint of (a) the owners of the firm, and (b) the operating efficiency of the firm. The ratios covered under the rate of return to the equity holders' fall under the first category. The operating efficiency of a firm in terms of the efficient utilization of the resources is reflected in net profit margin. It has been observed that although a high profit margin is a test of better performance a low margin does not necessarily imply a lower rate of return on investments if a firm has higher investment/assets turnover. Therefore, the overall operating efficiency of a firm can be accessed on the basis of a combination of the two. The combined profitability is referred to as earning power, return on investment (ROI) ratio. The earning power of a firm may be defined as the overall profitability of an enterprise. This ratio has two elements: (i) Profitability on sales as reflected in the net profit margin, and (ii) Profitability of investments, which is revealed by the investment/assets turnover. The

earning power (ROI ratio) of a firm can be computed by multiplying the net profit margin and the investment (assets) turnover. Thus,

$$\text{Earning power} = \text{Net profit margin} \times \text{Investment turnover}$$

We know that,

$$\text{Net profit margin} = \frac{\text{Net profit after taxes}}{\text{Sales}}$$

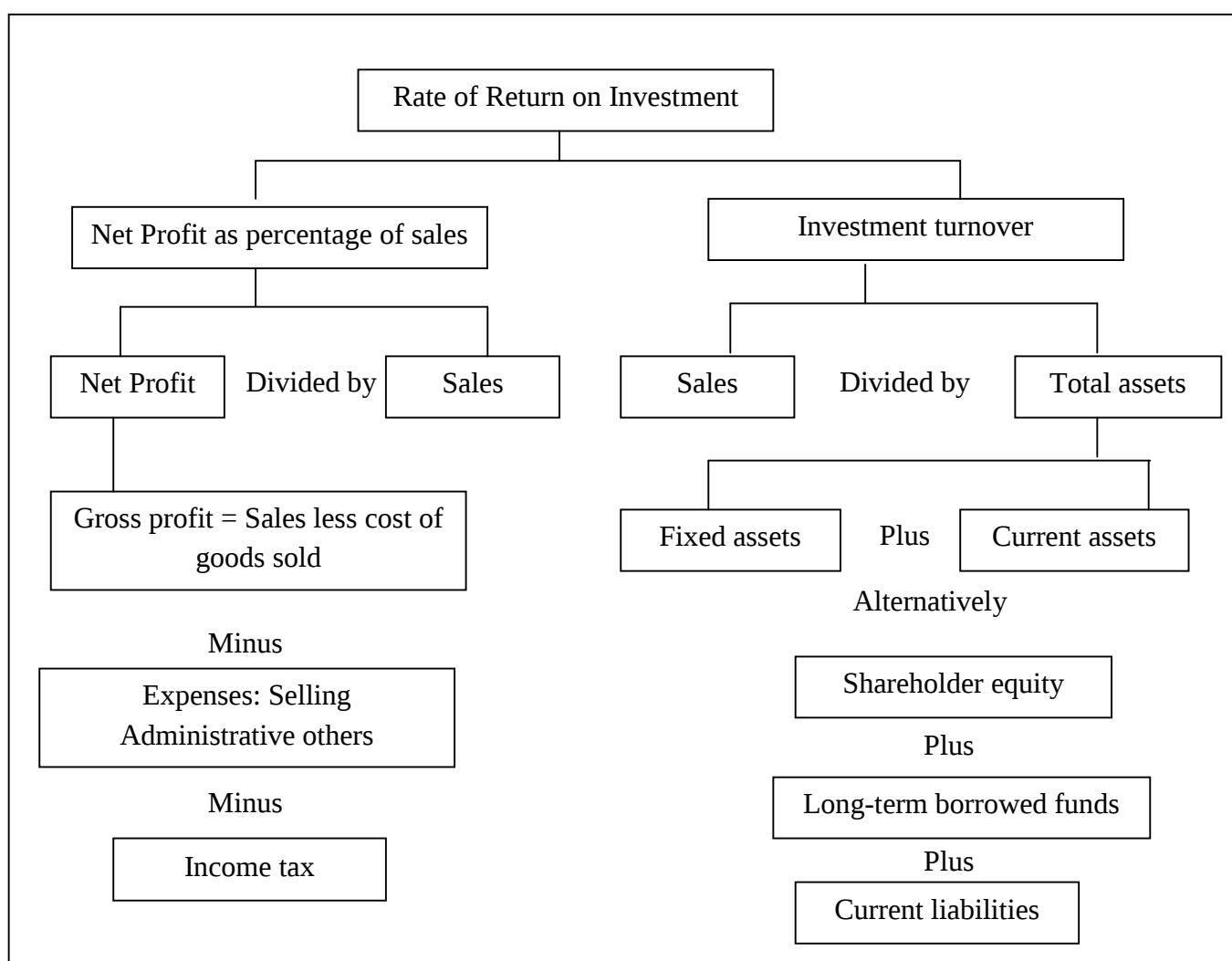
$$\text{Investment turnover} = \frac{\text{Sales}}{\text{Total investment}}$$

We have already mentioned that the term “Investment” may refer to (i) total assets, (ii) capital employed, and (iii) shareholders’ equity. For purpose of the investment turnover, we use the term here in the first sense; i.e. assets. The investment turnover is discussed in detail in the section dealing with activities ratios. The earning power may be calculated as follows:

$$\text{Earning Power} = \frac{\text{Net profit after taxes}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} = \frac{\text{Net profit after taxes}}{\text{Total Assets}}$$

The based elements of the earning power of a firm are portrayed in figure. This chart is known as the Du Pont Chart.

Fig: 2.1 Du Pont Chart



Source: Joshi Padam Raj, 2008

The earning power or the ROI ratio is a central measure of the overall profitability and operational efficiency of a firm. It shows the interaction of the profitability and activity ratios. It implies that the performance of a firm can be improved either by generating more sales volume per rupee of investment or by increasing the profit margin per rupee of sales.

IV) Activity Ratios/ Turnover Ratio

Activity ratios are concerned with measuring the efficiency ratios or asset utilization ratios. The efficiency with which the assets are used would be reflected in the speed and rapidity with which assets are converted into sales. The greater the rate of turnover or conversion, the more efficient the utilization/arrangement, other things being

equal. For this reason, such ratios are also designated as turnover ratios. Turnover is this primary mode for measuring the extent of efficient employment of is the primary mode for measuring the extent of efficient employment of is the primary mode for measuring the extent of efficient employment of assets by relating the assets to sales. An activities ratio may, therefore, be defined as a test of the relationship between sales (more appropriately with cost of sales) and the various assets of a firm. Depending upon the various types of assets, there are various types of activity ratios. We describe and illustrate some of the important and widely used ratios. Some reference to these was made as a supplement to the liquidity ratios. Here we examine them in detail.

A) Inventory (Or Stock) Turnover Ratio

The ratio, it may be recalled, indicates the number of times inventory is replaced during the year. It measures the relationship between the cost of goods sold and the inventory level. The ratio can be computed in two ways.

First, it is calculated by dividing the cost of goods sold by the average inventory. Symbolically,

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Cost of goods sold = opening stock + Manufacturing cost (including purchase) – closing stock (inventory)

The average inventory figure may be of two types. In the first place, it may be the monthly inventory (stock) average. Adding the opening inventory of each month from, in case of the accounting year being a calendar year, January through January and dividing the total by 12 can find the monthly average. If the firm's accounting year is another than a calendar year, say a financial year, (April to March), the average level of inventory can be computed by adding the opening inventory of each month from April through April and Dividing the total by 12. This approach has the advantage of being free from bias as it smoothens out the fluctuations in inventory level at different periods. This is particularly true of firms in seasonal industries. However, a serious limitation of this approach is that detailed month-wise information

may present practical problems of collection for the analyst. Therefore, the average inventory may be obtained by using another basis. According to the latter, the average inventory is the average of the opening inventory and the closing inventory [i.e. (opening inventory + closing inventory)÷2].

Not only are there difficulties in getting detailed information regarding inventory level, but also data may also not be readily available to analyst in respect of the cost of goods sold. To solve the problem arising out of non-availability of the required data, second approach to the computation of inventory turnover ratio is based on the relationship between sales and closing inventory, i.e. inventory at the end of the year. Thus, alternatively,

$$\text{Inventory turnover} = \frac{\text{Sales}}{\text{Closing inventory}}$$

In theory, this approach is not a satisfactory basis as it is not logical. For one thing, the numerator (sales) and the denominator (inventory) are not strictly comparable as the former is expressed in terms of market price, the latter is based on cost. Secondly, the inventory figures are likely to be under-estimates as firms traditionally have lower inventory at the end of the year. The net effect will be that the ratio given by this approach will be higher than the one given by the first approach.

B) Receivables (Debtors) Turnover Ratio and Collection Period

The second major activity ratio is the receivables or debtors turnover ratio. Allied and closely related to this is the average collection period. It shows how quickly receivable or debtors are converted into cash. In other words, the debtor turnover ratio is a test of the liquidity of the debtors of a firm.

The liquidity of a firm's receivables can be examined in two ways:

- i) Debtors/receivables turnover; (ii) average collection period.

The debtor's turnover shows the relationship between credit sales and debtors of a firm. It can be calculated in two ways:

$$i) \quad \text{Debtors turnover} = \frac{\text{Credit Sales}}{\text{Total debtor}}$$

This approach requires two types of data: First, credit sales which may not be readily available to the analyst. Similarly, the computation of the figure of average debtors and bills receivable involves practical difficulties. In theory, these figures should be measured, as in case of average inventory, on the basis of the monthly average. Since this type of information is to use the average of the opening and closing balance of debtors and bills receivable. The average in the above equation refers to the average of the opening and closing balances.

To solve the difficulty arising out of the non-availability of the information in respect of credit sales and average debtors and bills receivables the alternative method is to calculate the debtors turnover in terms of the relationship between total sales and closing balance of debtors. Thus,

$$ii) \quad \text{Debtors turnover} = \frac{\text{Total sales}}{\text{Debtors} + \text{Bills receivable}}$$

It should be noted that the first approach to the computation of the debtor turnover is superior in that the question of the speed of conversion of sales into cash arises only in case of credit sales. The effect of adopting the second approach would be to inflate the receivables turnover ratio.

The second type of ratio for measuring the liquidity of a firm's debtors is the average collection period ratio. This ratio is, in fact, interrelated with, and dependent upon, the receivables turnover ratio. It is calculated by dividing the days in a year by the debtor turnover. Thus,

$$\text{Average collection period} = \frac{\text{Days in a year}}{\text{Debtors turnover}}$$

c) **Assets Turnover Ratio**

This ratio is also known as the investment turnover ratio. It is based on the relationship between the cost of goods sold and assets/investments of a firm. A reference to this was made while working out the overall profitability of a firm as

reflected in its earning power. Depending upon the different concepts of assets employed, there are many variants of this ratio.

$$\text{i) Total assets turnover} = \frac{\text{Cost of goods sold}}{\text{Total assets}}$$

$$\text{ii) Fixed assets turnover} = \frac{\text{Cost of goods sold}}{\text{Fixed assets}}$$

Here, total assets and fixed assets are net of depreciation and the assets are exclusive of fictitious assets like debit balance of profit and loss account and deferred expenditures etc.

The assets turnover ratio, howsoever defined, measures the efficiency of a firm in managing and utilizing its assets. The higher the turnover ratio, the more efficient the management and utilization of the assets while low run over ratios are indicative of under utilization of available resources and presence of idle capacity. In operational terms, it implies that the firm can expand its activity level (in terms of production and sales) without requiring capital investment. In the case of high ratios, the firm would normally be required, other things being equal, to make additional capital investments to operate at higher level of activity. To determine the efficiency of the ratio is should be compared across time as well as with the industry average. In using the assets turnover ratios one point must be carefully kept in mind, the concept of assets/fixed assets in net of depreciation. As a result, the ratio is likely to be higher is the case of an old and established company as compared to a new one, other thigns being equal. The turnover ratio is in such cases likely to give a misleading impression regarding the relative efficiency with which assets are being used. It should, therefore, be cautiously used.

2.1.2 Importance of Ratio analysis

The preceding discussions in this chapter, we have illustrated the computation and the implications of the important ratios that can be calculated from the balance sheet and profit and loss accounts (financial statements) of a firm. As a tool of financial management, they are of crucial significance. The importance of ratio analysis lies in the fact that it presents facts on a comparative basis and enables the drawing of

inferences regarding the performance of a firm. Ratio analysis is relevant in assessing the performance of a firm in respect of the following aspects.

Liquidity Position

With the help of ratio analysis conclusions can be drawn regarding the liquidity position of a firm. The liquidity position of a firm would be satisfactory if it is able to meet its current obligations when they become due. A firm can be said to have the ability to meet its short term liabilities if it has sufficient liquid funds to pay to interest on its short-maturing debt usually within a year as well the principal. This ability is reflected in the liquidity ratios of a firm. The liquidity ratios are particularly useful in credit analysis by banks and other suppliers of short-term loans.

Long-Term Solvency

Ratio analysis is equally useful for assessing the long-term financial viability of a firm. This aspect of the financial position of a borrower is of concern to the long-term creditors, security analysts and present and potential owners of a business. The long-term solvency is measured by the leverage/capital structure and profitability ratios, which focus on earning power and operating efficiency. Ratio analysis reveals the strength and weaknesses of a firm in this respect. This leverage ratio, for instance, will indicate whether a firm has a reasonable proportion of various sources of finance or whether heavily loaded with debt in which case its solvency is exposed to serious strain. Similarly, the various profitability ratios would reveal whether or not the firm is able to offer adequate return to its owners consistent with the risk involved.

Operating Efficiency

Yet another dimension of the usefulness of the ratio analysis, relevant from the viewpoint of management, is that it throws light on the degree of efficiency in the management and utilization of its assets. It would be recalled that the various activity ratios measure this kind of operational efficiency. In fact, the solvency of a firm is, in the ultimate analysis, dependent upon the sales revenues generated by the use of its assets total as well as its components.

Overall Profitability

Unlike the outside parties, which are interested in one aspect of the financial position of a firm, the management is constantly concerned about the overall profitability of the enterprise. That is, they are concerned about the ability of the firm to meet its short-term as well as long-term obligations to its creditors, to ensure a reasonable return to its owners and secure optimum utilization of the assets of the firm. This is possible if an integrated view is taken and all the ratios are considered together.

Inter-Firm comparison

Ratio analysis not only throws light on the financial position of a firm but also serves as a stepping-stone to remedial measures. This is made possible due to inter-firm comparison with industry averages. A single figure of particular ratio is meaningless unless it is related to some standard or norm. One of the popular techniques is to compare the ratios of a firm with the industry average. It should be reasonable expected that the performance of a firm should be in board conformity with that of the industry to which it belongs. At inter-firm comparison would demonstrate the relative position vis-à-vis its competitors. If the results are at variance either with the industry average or with those of the competitors, the firm can seek to identify the probable reasons and, in that light, take remedial measures.

Trend Analysis

Finally, ratio analysis enables a firm to take the time dimension into account. In other words, whether the financial position of a firm is improving or deteriorating over the years. This is made possible by the use of trend analysis. The significance of a trend analysis of ratios lies in the fact that the analyst can know the direction of movement, i.e. whether the movement is favorable or unfavorable. For example, the ratio may be low as compared to the norm/standard but the trend may be upward. On the other hand, though the present level may be satisfactory but the trend may be declining one. Thus, trend analysis is of great significance.

2.1.3 Limitations of Ratio Analysis

Ratio analysis is, as already mentioned, a widely-used tool of financial analysis. Yet it suffers from various limitations. The operational implication of this is that while using ratios, the conclusion should not be taken on their face value. Some of the limitations, which characterize ratio analysis, are:

Difficulty in Comparison

One serious limitation of ratio analysis arises out of the difficulty associated with their comparison to draw inferences. One technique that is employed in inter-firm comparison, but such comparison is vitiated by different procedure adopted by different procedures adopted by various firms. The differences may related to:

- i) Differences in the basis of inventory valuation (e.g. last in first out, first in first out, average cost and cost.)
- ii) Different depreciation method (i.e. straight line vs. accelerated basis).
- iii) Estimated working life of assets, particularly of plant and equipment.
- iv) Amortization of intangible assets like goodwill, patents and so on.
- v) Amortization of deferred revenue expenditure such as preliminary expenditure and discount on issue of shares.
- vi) Capitalization of lease.
- vii) Treatment of extraordinary items of income and expenditure; and so on.

Secondly, apart from different accounting procedures; companies may have different accounting periods, implying differences in the composition of the assets, particularly current assets for these reasons the ratios of two firms may not be strictly comparable.

Another basis of comparison is the industry average. This presupposes the availability on a comprehensive scale of various ratios for each industry group over a period of time. If, however, as is likely, such information is not compiled and available, the utility of ratio analysis would be limited.

Impact of Inflation

The second major limitation of the ratio analysis as a tool of financial analysis is associated with price level changes. This, in fact, is a weakness of the traditional

financial statements which are based on historical costs. The one implication of this feature of the financial statements as regards ratio analysis is that assets acquired at different periods are, in effect, shown at different prices in the balance sheet, as they are not adjusted for changes in the price level. As a result, ratio analysis will not yield strictly comparable and, therefore, dependable results. To illustrate, there are two firms which have identical rates of return on investment, say 15%. But one of these had acquired its fixed assets when prices were relatively low while the other one had purchased them when prices were high. The result will be that the book value of the fixed assets of the former type of firm would be lower, while that of the latter higher. From the point of profitability the return on investment of the firm with lower book value are over-stated. Obviously, identical rates of return on investment are not indicative of equal profitability of the two firms. This is a limitation of ratios.

Conceptual Diversity

Yet another factor, which affects the usefulness of ratios, is that there are differences of opinion regarding the various concepts used to compute the ratios. As shown already, there is scope for diversity of opinion as to what constitutes shareholders equity, debt, assets, and profits and so on. Different firms may use these terms in different senses or the same firm may use them to mean different things at different times.

Reliance on a single ratio for a particular purpose may not be a conclusive indicator. For instance, the current ratio alone is not an adequate measure of short-term financial strength; it should be supplemented by the acid test ratio, debtor turnover ratio and inventory turnover ratio to have a real insight into the liquidity aspect.

Finally, ratios are only a post-mortem of what has happened between two balance sheet dates. For one thing the position in the interim period is not revealed by the ratio analysis Moreover; they give on clue to the future.

In brief, ratio analyses suffers from serious limitations. The analyst should not be carried away by its oversimplified nature, easy computation with a high degree of precision. The reliability and significance attached to ratio will largely deepen upon the quality of data on which they are based. They are as good as the data itself. Nevertheless, they are important tools of financial analysis.

2.2 Review of Related Research Work

This review provides a comparative prospective to evaluate and interpret and significance of one's findings. To the researches least knowledge no research has been made on financial profitability of PF with data up to 2068/069. But only a few research studies related to profitability in public enterprise in Nepal has been undertaken. In this section, an attempt has been made to review them.

The article entitled "Surplus Generation in Nepalese public Enterprise", was undertaken by Jay Krishna Pathak (1982) covering an eight years period (F/Y 1973/74 to 1980/81. This article was written with the objective of analyzing the rate of return of manufacturing public enterprise in Nepal. Some of the main findings of the study were:

- a) Equity capital, capital subsidies, reserve funds and long term loan were the prime financing sources in Nepalese manufacturing public enterprises.
- b) Production capacity was found underutilized between 50 to 60 percent.
- c) Over the years, profits generated by the enterprises were found declined in spite of increase in sales due to losses incurred by a number of enterprises, such situation was due to increase cost of production and relatively low increment in selling price, lack of proper budgeting and planning and absence of management information system. This above mentioned study was concerned with the overall performance of the enterprises while the present study is a single enterprise case study and is concerned mainly with the financial position of PF.

A case study of Janakpur cigarette factory was also undertaken by Jitendra Prasad Adhikari (1993) on "A financial analysis of manufacturing public enterprises in Nepal". He revealed that:

Profitability position of JCF was extremely poor from liquidity point of view also it was observes not satisfactory. This was indicating poor working capital policy. Capital point of view also unsatisfactory result by efficiency was indicating utilization to some extent. After observing the fact and figure. Mr. Adhikari suggested to let down the excess cost of production administrative & selling expenses and highly

financial expenses and specially emphasized for establishment of separate department for cost planning & cost control.

A case study of National trading Ltd. was also undertaken by Bhim Kumar Thapa (2056) on "Financial position of NTL" he revealed that:

- I. During the study period, company has not raised any fund either issuing the share or raising long-term loan and these funds should be utilized in profitable sector to achieve the objectives.
- II. Debtors turnover ratio of NTL is very high it means NTL has toughened its credit policies to increase sale.
- III. Liquidity position of NTL is not in satisfactory level because current ratio and quick ratio both are below than normal standard. So the NTL is suggested to change the sound working capital policy for keeping the sufficient liquidity position.
- IV. Profitability ratios like return on total assets, return on fixed assets, return on equity capital, earning per share dividend per share etc. are not satisfactory level and all are in decreasing trend, which present the weak aspect of the NTL. Therefore NTL is suggested to study the market so that optimum level of inventory would be purchased. Company must reduce those both direct and indirect expenses.
- V. At present the wind is blowing towards liberalization and privatization and privatization of the public enterprises. So the management should re-think about the NTL, that whether it should leave to the private sector or make an efficient and competitive management with health environment. Privatization is not a complete solution of public enterprises; if we make good management it is sure to improve the financial position.

Sabita Dhakwa (1989) has also added one more pillar in the field of financial performance in Nepalese public enterprise. She has studied pioneer trading organization, salt trading corporation Ltd, which was incorporated the year 2020 B.S. under joint public and private ownership. The major findings of her research on STCL are:

- a) Financial performance of STCL is satisfactory on the overall observation.

- b) The company is recording better sales with supporting profit enhancing ability.
- c) STCL has adequate current assets to meet current liabilities timely.
- d) It is fully equity owners corporation without any long term debt.
- e) The expansion programs of corporation is well of record in view of its diversification of investment in subsidiary companies.
- f) The better utilization of assets has enhanced the net worth.
- g) There is no denying fact that STCL is as inspiring example of good financial performance among the various public companies.

2.3 Review of Related Dissertation

Under this section various unpublished master's level dissertation related to this study have been reviewed these are as flows:

Bohara (1992) has done a study on financial performance of Nepal Arab Bank Ltd. (NABIL) and Nepal Indosuez Bank Ltd (NIBL). the basic objectives of this study were to highlight on the functions and policies of joint ventures bank and to evaluated the comparative financial performance of NABIL and NIBL. The study has covered the five fiscal years 1986/87 through 1990/91. In this study financial tools along with statistical tools have been used. Different ratios liquidity, activity, coverage, leverage, profitability and other indicators like earning per share, dividend per share, market value to book value ratio, have been used to evaluate the performance of NABIL and NIBL. In statistical tool the least square method has been employed. The researcher has on the basis of different financial indicators, conducted that performance of NABIL is better than that of NIBL. The researcher further conducted that bank performance cannot be judged solely in term of profit as it may have earned profit by maintaining adequate liquidity and safety position. The researcher has recommended to NIBL to extent their banking facilities even in the rural areas by opening up branches besides the improvement in maintaining the adequate capital structure by increasing equality base.

Rejendra Bahadur Sing (1989) has observed the financial performance on national trading limited. He concluded his findings as under.

- a) Circulation of working capital of corporation is very poor.

- b) Extremely high volume of debt have made corporation weak.
- c) Sales situation of the corporation is extremely poor.
- d) Poor financial management has also included heavy loss.
- e) Fund utilization is poor and one of the main cause of running the company into losses in due to heavy interest which is has to pay for its large volume of loans.

Singh has recommended some measure on the basis of this study.

- i) They have to improve inventory management.
- ii) They have to improve receivable management.

Deoja (2001) conducted study entitled "A comparative study of the financial performance between Nepal state Bank of India limited and Nepal Bangladesh Bank Limited". The researcher's main objectives of study was to evaluate the trend of deposits and loan and advance of NSBIL and NBBL and to evaluate the liquidity, profitability, capital structure turnover and capital adequacy position of NSBIL and NBBL. Through research found that the cash and bank balance to current assets, saving deposit to total deposit etc. of NSBIL are higher while fixed deposit to total deposit, loan and advances to current assets of NBBL are higher and NBBL and better turnover than NSBIL in terms of loan and advances to total deposit ratio and loan and advances to fixed deposit ratio. Through the study of the different ratios has conducted that both banks are highly leveraged.

The study was done by Sanjaya Kumar Shrestha (1993) with the objectives of finding out profitability, strength and weakness of financial and operating structure, source of financing. The study covers a period of seven years from 2041/042 to 2047/048.

The study concludes that operating profit was always negative indication the dismal profitability position was found to have been extremely dismal widely fluctuating. The study shows that DDC was successful and inefficient in reducing the excessive cost of production and cost of operation. No proper palling and control mechanism has been found to function. Pricing system seemed to be defective regarding its fixing procedure and alternation procedure. Liquidity point of view but it was found fluctuation and adopting no particular trend. Funds flow analysis indicates that there has not strong source of fund.

Bhandari (2006) used descriptive analysis in his research work of evaluating financial performance of Himalayan Bank in the framework of CAMEL during 1999 to 2004 A.D. the Analysis revealed adequate capital of the bank. The non performing loans though in decreasing trend are still a matter of concern. The bank is still with better ROE however it is in decreasing trend. The decreasing trend of net interest margin shows management slack monitoring over the bank's earning assets. The liquid funds to total deposit ratio is above the industrial average ratio. NRB balance and cash in vault to total deposit ratios are below the industrial average ratio during the study period.

Alam (2008) has conducted a research on capital structure of selected commercial banks in Nepal. "A comparatively analysis of capital structure management between Nepal investment Bank Limited and Himalayan Bank limited". This study has tried to cover the various aspects of capital structure of the NIBL & HBL for the time period of seven years from f/y 2001/01 to 2006/07. Total fixed deposits of NIBL were increasing during every fiscal year except in f/y 2002/2003. Thus NIBL was giving more emphasis to increase fixed deposit during every fiscal year but due to high cost of fund, the bank has given importance to decrease fixed deposit in f/y 2002/2003.

The portion of total debt in shareholder's equity was increasing throughout the study period in f/y 2002/2003 and 2005/2006. Similarly the debt to equity ratio of HBL was decreasing except in f/y 2005/2006. Return on Assets of both the banks was fluctuating throughout the study period and are not satisfactory. In average, NIBL had more return on assets than HBL. The negative charge in rate on return of assets shows that the bank had not been able to utilize its resources in most profitable projects. The C.V. of NIBL was more than that of HBL. Thus, there was more variation of return on deposits in NIBL than HBL.

Neupane (2009) has done a study on "Financial analysis of Agricultural development Bank Limited". The objective of the study was to analyze the liquidity profitability assets utilized and risk of ADBL, to analyze the relationship e.g. Investment loan and advance with deposited and profitability and to analyze the growth and trend increase in expenditure or the bank decreases the overall profit of the organization.

Kandel (2009) in his thesis entitled “financial performance of Nepalese commercial Banks”. His study objectives are to find out the trend analysis of total deposit loan and advance, total income and expenses, net profit and to evaluate financial performance in terms of statistical and financial tools then examine financial performance of relative commercial banks.

2.4 Research Gap

Several studies were made on different governmental and non-governmental under taking is financial aspects. These studies lack micro level analysis and found applying traditional analysis of financial performance. There is no previous researcher made on financial analysis of Pancharatna feed Pvt. Ltd. The research is based on secondary data. The researcher has used current data from f/y 2064/065 to 2068/069.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 Introduction

"Research methodology is the way to solve about research problem systematically." Therefore research methodology is the research method or technique to use through the entire study. In other word research methodology is the process of arriving at the solution of the problem through planned and systematic dealing with collector analysis and interpretation of the face and figure. The objective of this study is to known the financial strength and weakness of PF.

In order to achieve the objective or the study the following research methodology has follows.

1. Research to design
2. Sources and types of data
3. Population and sample
4. Data gathering procedures and instrument
5. Data processing procedure of tools for analysis

3.1.1 Research Design

A research design is the arrangement of conditions for the collections and analysis of the data in manner that aims to combine relevance to the research purpose with economy procedure." Research design is the plan, structure and strategy if investigation conceived so as to obtain answers to research question and to control variances to achieve to the study. Description and analytical research design have been some statistical and financial tools have also been applied to examine and descriptive technique which have been adopted to evaluate financial structure of Pancharatna feed.

3.1.2 Source of Data

This study is conducted on the basis of secondary data balance sheet income statement and other some related schedules of PF have been collected, analyzed and interpreted in this study.

To accomplish the needs and objectives of the study all the secondary data are compiled, processed and tabulated in appropriate forms. In order to judge the reliability of the data, provided by the PF and other sources are formal and informal tool with the concerned head of the department of PF where also help to obtain the additional information of related problem.

3.1.3 Population and Sample

The word population as used in statistics denotes the aggregate form the sample has been taken, under the population survey method data are collected for each and every unit of the population of universe, which in the complete set of items and which are useful in any particular situation. However limitation of the time, energy and money may accommodate only a partial review of the population, which is called sample. At present there are many private enterprises, which are running in our country. It isn't possible to study all private enterprises of Nepal because of the limitation of time so; Pancharatna feed has only been selected as sample for the purpose of analysis and evaluation in this study.

3.1.3.1 A brief Introduction of Pancharatna Feed Pvt. Ltd.

Nepal is a least development country, which has high agro-based economy. Considering the excessive dependence of population agriculture (i.e. recently 81.6%). Pancharatna Feed Pvt. Ltd. is the most popular company in the private section. This company was established in 2050 B.S. which is located in Anadapur in Chitwan district Nepal. The Pancharatna Feed was started in partnership of five partners. This company was established to fulfill the demands of poultry feeds almost all parts of Nepal and its secondary aim is chicken farming to supply the meat and eggs. This company was certified by the ISO 9001: 2008 and this company followed the rules and regulation of ISO 9001:2008. this company was produced poultry feed, Animal feed and distributed all over in Nepal. This company was placed in the front line of

the group of all feed productive company. In the agriculture field animal and poultry business, quality and balanced feed play the main role to produce the good product from the quality and balanced feed. It may take more profit and that business was increasing order. But if it may not feed balanced feed then it can't take more/sufficient profit and we may not be able to increase that business, so that the company Pancharatna feed Pvt. Ltd. was established. Rapid growth of private enterprises in the form of industry was then the carrying need of the country for strengthening national economy.

The company Pancharatna feed Pvt. Ltd. was produced that different types of feed for the different ages poultry.

Table No. 3.1
Product of Pancharatna Brands are

Items of Feed	Packing	Feeding Duration
Pelet chicks starter (no. 1)	50 kg	0-8 weeks
Pelet Grower (no. 2)	50 kg	9-16 week
Layer pelet (no. 3)	50kg	above 17 weeks
layer pelet (no. 33 deep litre)	50 kg	above 17 weeks
pelet broiler pre-starter (b '0' no.)	50 kg	1-20 day
pelet broiler starter (B 'i' no.)	50 kg	21-35 days
pelet broiler finisher (B '2' no')	50 kg	above 36 day
catel feed -sml ²	50/25kg	
pig feed	50/25 kg	
parent feed	50 kg	
concentrate feed	50 kg	
Goat feed	50 kg	

Source: Published Bulletin, 2012

The Pancharatna feed Pvt. Ltd. produced the different types of production like poultry feed, cattle feed, pig feed etc are the production of this company. These products are produced by the rural of ISO and doctors made formula. Pancharatna feed Pvt. Ltd. company follow the ISO rules and Dr. Mahendranath Lohani Developed the formula for balanced feed production. Dr. Lohani supervise manage & check the quality

control at the time of feed production. So that the product of Pancharatna Feed Pvt. Ltd. are must be qualify and balanced from the PF product consumer are able to take more profitability and they can increase their economical status. So that the PF production are (feed) qualify balanced and according to an ISO 9001: 2008 and PF management term commitment to production are must be qualify and balanced in future time.

3.1.4 Data Processing and Analysis Tools

To achieve the objective of the study, various statically, financial and accounting tools have been used in this study. The analysis of data has been done on the basis of data available. Because of limitation time and resources, simple statically tools such as mean, standard deviation, coefficient or variance, graph percentage and Karl Pearson's co-efficient of correlation trend analysis has been adopted in the study.

Similarly some important financial tools such as ratio analysis, common size statement analysis have been used for the purpose of financial analysis. This various cumulated result obtained through financial, accounting and statistical tools have been presented under different heading.

1. Mean; Average value of the sample by summing the given observation.
2. Standard Deviation: The sample error calculated from the scatter mess of the individual distribution.
3. Graphic Presentation of each outcome.
4. Ratio analysis: financial analysis to get the effectiveness of each items either the balance sheet items or the income statement items, in comparison to another item is called ratio analysis.
5. Regressions Analysis: out of the various statistical tools to analyzed a study. Researchers have chosen regression analysis finds the impact of change in dependent variable by changing independent variable. The literal or dictionary meaning of the word "Regression is stepping back or returning to the avarage value."

3.2 Period Covered

The present study covers the time period of five years (i.e. f/y 2064/65 to 2068/69)

3.3 Research Variable

Research variables play vital role in developing profit plan. Research variables of this research work are sales, current assets, fixed assets, long term debt, short term debt, shareholder's equity, profit and loss, capacity utilization, cash flow and time period of Pancharatna feed.

CHAPTER-IV

DATA PRESENTATION AND ANALYSIS

The main objective of this study as mentioned earlier, in chapter one is to draw a vital conclusion of PF regarding economic capability, operating efficiency and financial position, for this purpose, research methodology followed has already been discussed in chapter III. In this chapter, Researcher proposed to analyze the firm's financial position. The study covers the period of five years from financial year 2064/065 to 2068/069. The financial statement of these years is analyzed by using ratio analysis.

4.1.1 Liquidity Ratio

4.1.1.1 Current Ratio

This is the Ratio that is widely used to evaluate the liquidity position of the firm. It measures the ability of firm to meet its short-term obligation with its assets available in the firm.

The current ratio is obtained by dividing the current assets by current liabilities. In other word,

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

This Ratio indicates the whether the concern has instant ability to pay off the current liabilities as they matured and whether it can face unforeseen reserves by the strength of its liquidity position. This ratio is a yardstick of judge the soundness of the short-term a yardstick to judge the soundness of the short-term financial position of the business unit or industry. The current ratio of 2:1 is usually considered as satisfactory applicable to all industries.

Table 4.1.1
Current Ratio of PF

Nrs in Thousand

Year	Current Assets	Current Liabilities	Current Ratio
2064/065	3130.11	1959.80	1.60
2065/066	5607.30	1565.48	3.58
2066/067	8220.04	2398.09	3.43
2067/068	11382.75	3591.02	3.17
2068/069	12890.15	4429.98	2.91
N=5			$\Sigma X = 14.69$

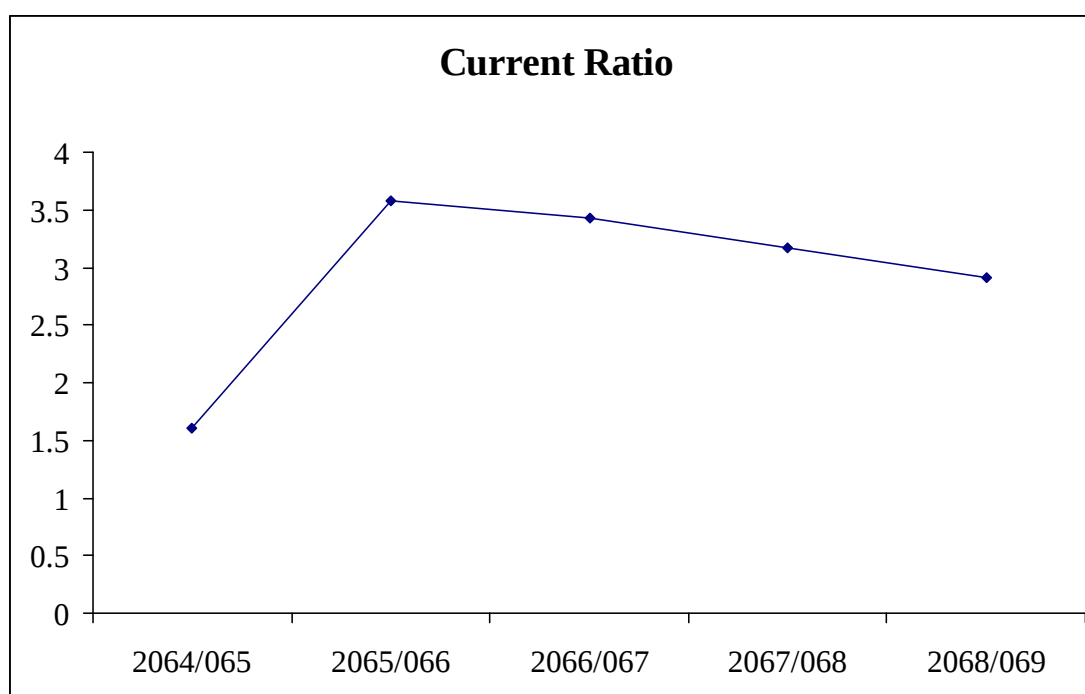
Source: Annual report of PF

Average Current Ratio ($\bar{X}$) = $\Sigma X / n = 14.69 / 5 = 2.93$

Standard deviation (s_x) = 0.69

(Using Calculators)

Figure 4.1.1



Source: Table No. 4.1.1

Table 4.1.1 shows that the current Ratio of PF for 2064/065 below the standard measure but the firm did not face any kind of liquidity problem at that period. If the

firm could manage its liquidity problem with maintaining lower current ratio than it is beneficial for that firm. Here the Current ratio of rest period is above the standard measure with average 2.93:1 PF is a manufacturing firm. Its output is sold during the year consistently whereas its input is seasonal therefore to make continuous and smooth sale, it must hold enough raw material and other supplies anytime. This seasonal availability of raw material forces firm to keep outstanding inventory that makes high current ratio.

Variance of Current Ratio over the five-year period is quite high because the standard deviation of current ratio over the period is 0.69.

4.1.1.2 Quick Ratio

Quick Ratio is also known as liquid ratio and acid test Ratio. Quick Ratio is a more refined measure of firm's liquidity. This Ratio measures the relationship between quick assets and Current liabilities. An asset is said to be quick if it can be converted into cash within operating cycle without loss in the value of assets. The other assets, which are considered to be relatively liquid and included in the quick assets, are book debts and marketable securities. The quick ratio is found out by dividing the total of quick assets by total current liabilities, that is:

$$\text{Quick ratio} = \frac{\text{quick assets}}{\text{Current liabilities}}$$

A quick ratio of 1:1 has generally been considered favorable. But the standard for the quick Ratio varies from company to company.

Table 4.1.2
Quick Ratio of PF

Nrs in Thousand

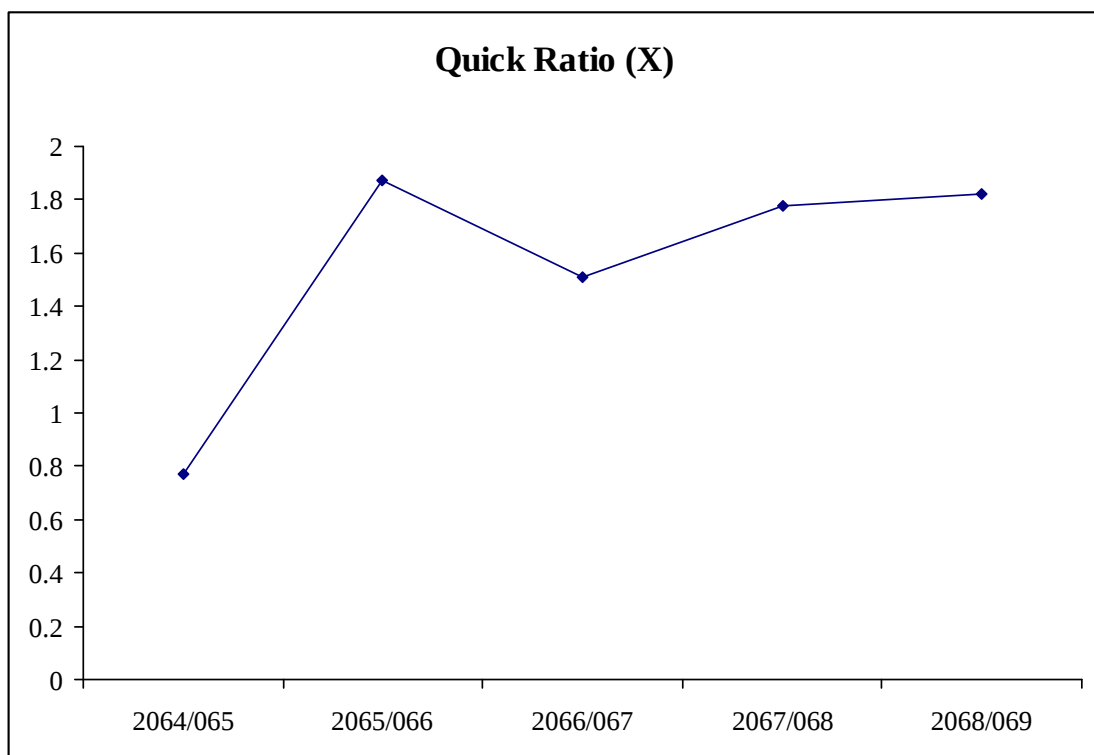
Year	Quick Assets	Current Liabilities	Quick Ratio (X)
2064/065	1201.52	1559.80	0.77
2065/066	2977.70	1565.48	1.87
2066/067	3616.62	2398.09	1.51
2067/068	6405.83	3591.02	1.78
2068/069	8075.72	4429.98	1.82
N=5			$\Sigma X = 7.75$

Source: Annual report of PF

Average Quick Ratio ($\bar{X}$) = $\Sigma X / n = 7.75 / 5 = 1.55$

Standard deviation (S_x) = 0.51

Figure 4.1.2



Source: Table No. 4.1.2

Quick Ratio of 2064/065 is below the standard measure 1:1, this is because of short collection period of receivable. At the beginning stages, the firm's major outputs were sold in local market of Nepal. So the collection period was not too long. Whereas, the firm started to make its sale to all part of Nepal, these days it's about 95% output are sold, which makes high average collection period and huge amount of receivable. Similarly, firm buys its input in block business and pays them at once, so the creditors for these purchases are not for long period. Therefore firm does not get chance to use creditor's money continuously as customers use its debtors? These all things are liable to make high quick Ratio. Therefore, the firm's high quick Ratio is not stable; it varies time and again, so its standard deviation is 0.51.

4.1.1.3 Working Capital

Working Capital is the amount not a Ratio but in Ratio analysis it plays a vital role. Either establishment or continuity of a business firm only acquisition of fixed assets is not enough; to do daily operation it needs certain working capital. In traditional or gross exploration of working capital is the sum of current assets, whereas the net concept of working capital is the difference of current assets and current liabilities. A firm should calculate the need of working capital while it is going to start operation. The calculated amount should be managed from proper and reliable source of finance. Financing needs cost, therefore the working capital is costly, holding lower level of working capital brings unnecessary deficit while paying back the short term obligation. According to net concept working capital could be calculated as under.

Working capital = Current Assets – Current Liabilities

The following table could show working capital of PF for the past five years.

Table 4.1.3
Working Capital of PF

(Nrs in Thousands)

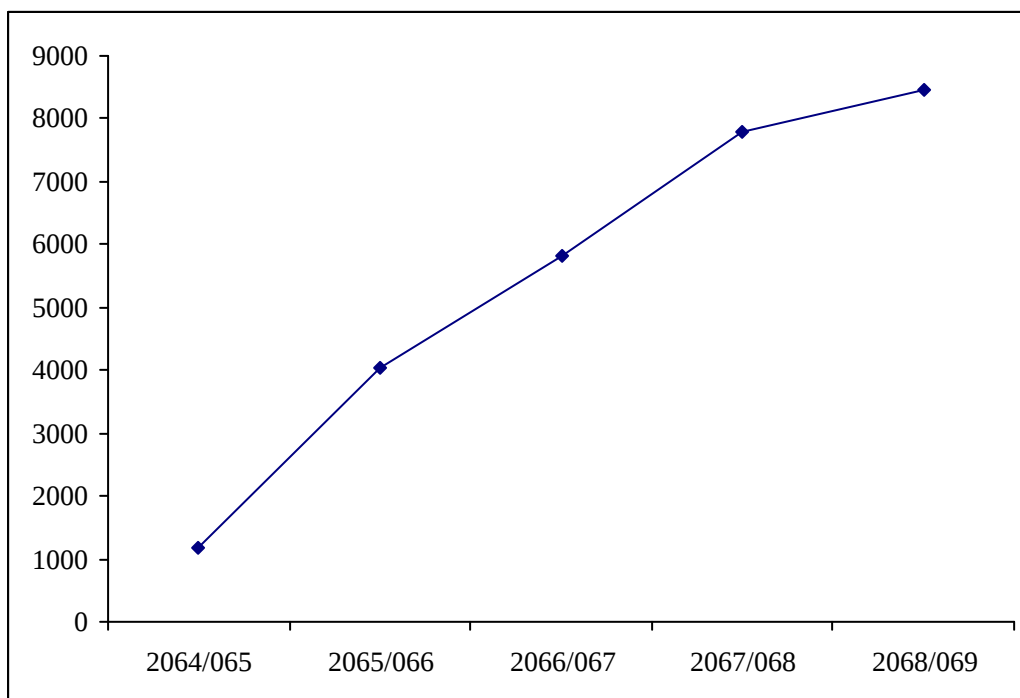
Year	Current Assets	Current Liabilities	Current Ratio (X)
2064/065	3130.11	1959.80	1170.31
2065/066	5607.30	1565.48	4041.82
2066/067	8220.04	2398.09	5821.95
2067/068	11382.75	3591.02	7791.73
2068/069	12890.65	4429.98	8460.67
N=5			$\Sigma X = 27286.480$

Source: Annual report of PF

Average working Capital $(\bar{X}) = \Sigma X / n = 277286.480/5 = 5457.296$

Standard Deviation $(s_x) = 2617.38$

Figure 4.1.3



Source: Table no. 4.1.3

As increase s in turnover, working capital need seems to be increased to two folds; therefore it was increased consistently with standard deviation of Rs. 2617.38 thousand. During the rapid change in working capital period 2064/065 to 2065/066, in one side current liabilities were decreased highly and current assets were also increased. But thereafter, the current liabilities haven't been decreased till now. Due to some operational difficulties, firm should need to keep high inventory, debtors and receivable, which are the major elements to push the working capital high.

4.1.2 Turnover Ratio/Activities Ratio

An activity Ratio may be defined as a test of the relationship between sales and various types of activities Ratio is employed to evaluate the efficiency with which the firm manages and utilizes its assets.

These Ratios are also called turnover Ratio because they indicate the speed with which assets are being converted or turned over into seller. Activities Ratio, so involve a relationship between sales and various assets and pressure that there exists an appropriate balance between sales and various assets. In the words of spiller "efficiency refers to two main aspects that is, investment efficiency and operating efficiently.

Among the various activities Ratio devised to judge the effectiveness of assets utilization, some of the more important ones for the general propose are inventory turnover, debtor's turnover, fixed assets turnover, total assets turnover and average collected period.

4.1.2.1 Total Assets Turnover Ratio

This Ratio is calculated in the following manner

$$\text{Total Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

Total assets include current assets fixed assets and preliminary expenses. In total word, total assets equal to net worth plus total debts.

This Ratio indicates the firm's efficiency in utilization of total assets in gestating sales. High assets turnover Ratio indicates that the total resources have been will

manage and low assets turnover indicates over investment in total assets. Generally a higher assets turnover Ratio is desirable and results in better profitability.

The total assets turnover Ratio of PF over the years has been calculated as follows:

Table 4.2.1
Total Assets Turnover Ratio

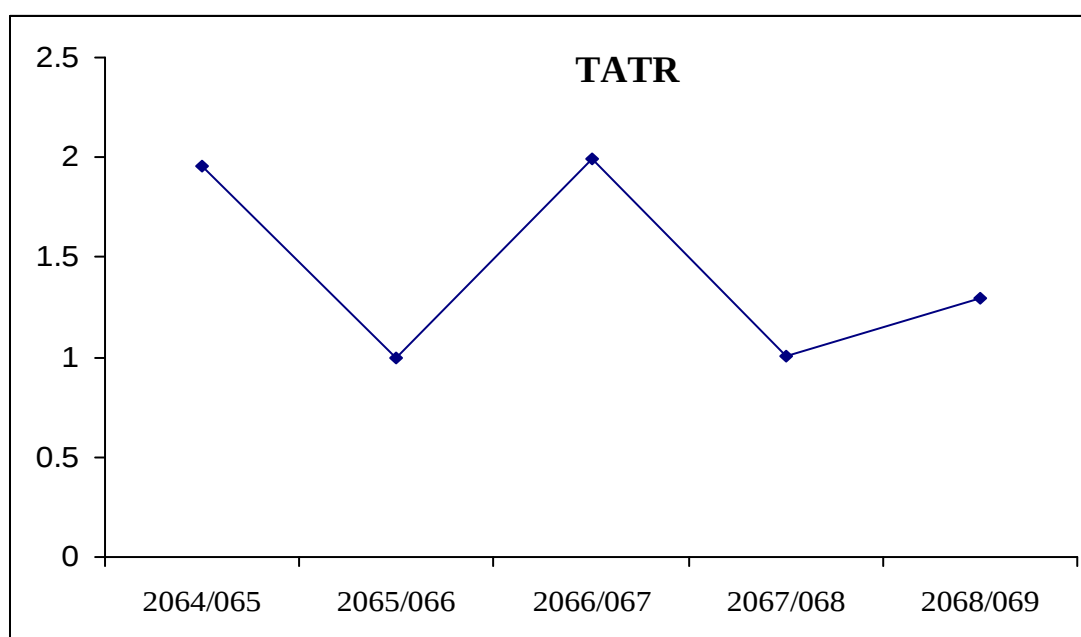
Year	Sales	Total Assets	TATR
2064/065	11663.80	5961.02	1.96
2065/066	13014.65	13016.81	1.00
2066/067	19007.20	15851.43	1.99
2067/068	20192.59	20150.04	1.002
2068/069	27644.62	21307.70	1.297
N=5			$\Sigma X = 6.458$

Source: Annual report of PF

Average TATR $(\bar{X}) = \Sigma X / n = 6.458 / 5 = 1.292$

Standard deviation $(s_x) = 0.157$

Figure 4.2.1



Source: Table 4.2.1

Due to the lack of standard measure the TATR calculated above might be good or bad but the trend of the TATR is up word that shows the bound TATR could be expected for future. The high value of standard deviation shows the change in TATR over the period is high; Average TAIR over the period is 1.292 where as the TATR of 2068/069 is 1.29, which is better, symbols for future.

PF is based on agricultural products therefore to generate input for further production is must acquire land in large volume. Similarly to do proper work if should make large number of building. In another side, due to distance of customer, it should have huge amount of receivable. Lastly, the problem of seasonality of input it must keep extra inventory. Therefore, the TATR of firms like PF could not be maintenance high, but the consistency is required, Positive increscent is very good for firm whereas the decrement might bring some huge problem for the firm.

4.1.2.2 Inventory Turnover Ratio

The Ratio is also called stock velocity/turnover Ratio. It is used to measure the efficiency of sales of firm. This Ratio means how many time to stock has turned over during the year, it indicates the company's efficacy of inventory management. Generally, a high inventory turnover indicates an efficient inventory management but low level of inventory turnover implies excessive inventory holding than warranted by production and sales activities or slow-moving/or absolute inventory, that is necessary lock up of capital in the less productive assets leading to impairment of profit.

Again, a very high inventory turnover may be due to very low level inventory holding that results in frequently stock outs and subsequently loss of sales and hence floss of profit.

So the extreme, that is, too high or too low inventory turnover needs to be investigated in depth.

The inventory turnover Ratio is computed in two ways. One method is that cost of goods sold is divided by average inventory and another method is that sales is divided by closing inventory. But in this analysis researcher calculate it to the proportion of cost of goods sold to closing inventory.

Symbolically,

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

The inventory turnover Ratio of PF is revealed to the following table.

Table 4.2.2
Inventory Turnover Ratio

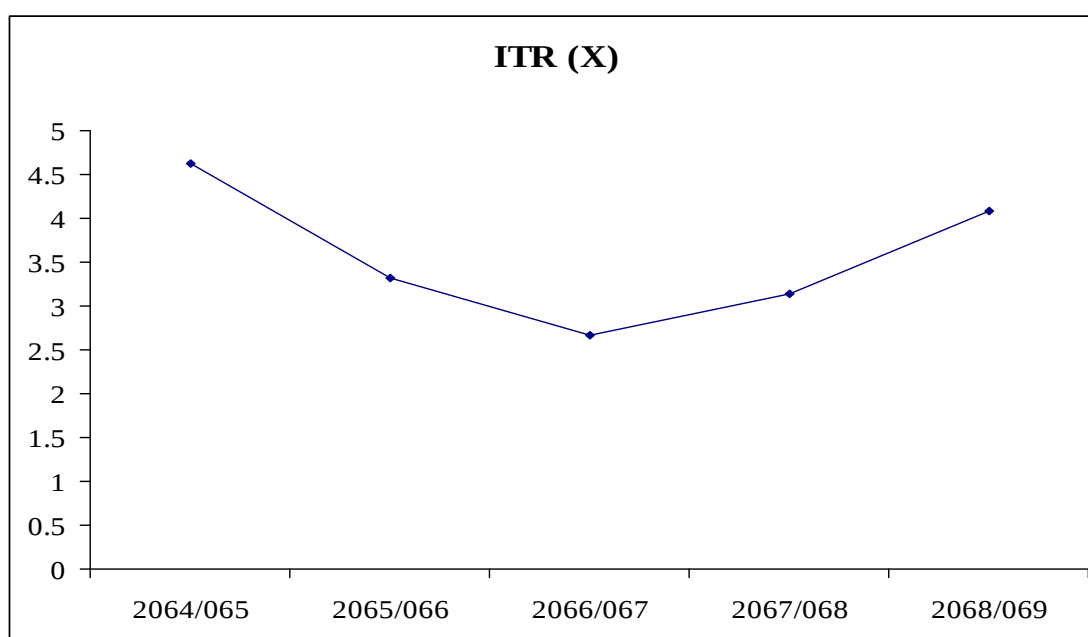
Year	Cost of Goods sold	Inventory	Inventory Turnover Ratio
2064/065	8929.76	1928.59	4.63
2065/066	8922.05	2684.6	3.32
2066/067	12241.76	4603.60	2.66
2067/068	15609.93	4976.92	3.136
2068/069	19660.71	4814.94	4.08
N=5			$\Sigma X = 17.826$

Source: Annual report of PF

$$\text{Average ITR } (\bar{X}) = \Sigma X / n = 17.826 / 5 = 3.565$$

$$\text{Standard deviation } (s_x) = 0.54$$

Figure 4.2.2



Source: Table 4.2.2

Although, the inventory turnover Ratio has no standard measure, the presented table of inventory turnover Ratio is satisfactory; Inventory turnover of PF is in increasing trend with standard deviation of 0.54. Average inventory turnover 3.56 is also suffered from the some problem of huge seasonal stock of raw material.

The table 4.2.2 clearly indicates that the Ratio has fluctuated widely and has ranged between 2.66 to 4.63 times.

In the overall observation, inventory turnover Ratio of PF is satisfactory. In the latest last three years of the study period, PF inventory Ratio seems incremental order which might be the positive symbol for future. PF is manufacturing concern, manufacturing firms gross margin is always higher than trading concerns but to make enough return, trading firms should increase also by effectively utilizing its working capital. It would be better to increase inventory turnover up to 5 times a years. Improvement in inventory management, increase in sales volume and decrease in stock may be by desirable course of action to push up to present inventory turnover Ratio.

4.1.2.3 Debtors Turnover Ratio

This Ratio measures the efficiency of debtors to make sales. It is better to make high sales with lower levels of debtors, but the firm should provide certain credit term to

make sales. A firm having relation with ultimate customers might have lower debtors with high sales. But a firm, a firm having channel customers should make credit sales for certain period which creates the debtors. At the time of selling on credit term, firm could save discount. This saving will compensate the cost of carrying receivable. Similarly, firm could make incremental save by relaxing credit term and standard which may be beneficial ultimately.

The ratio could be calculated as:

$$\text{Debtors Turnover Ratio} = \frac{\text{Sales}}{\text{Debtors}}$$

High debtor's turnover Ratio means huge sales with low debtors, which is preferable for each and every firm.

Debtor's turnover Ratio of PF could be shown by the following table 4.3.3.

Table 4.2.3
Debtors Turnover Ratio

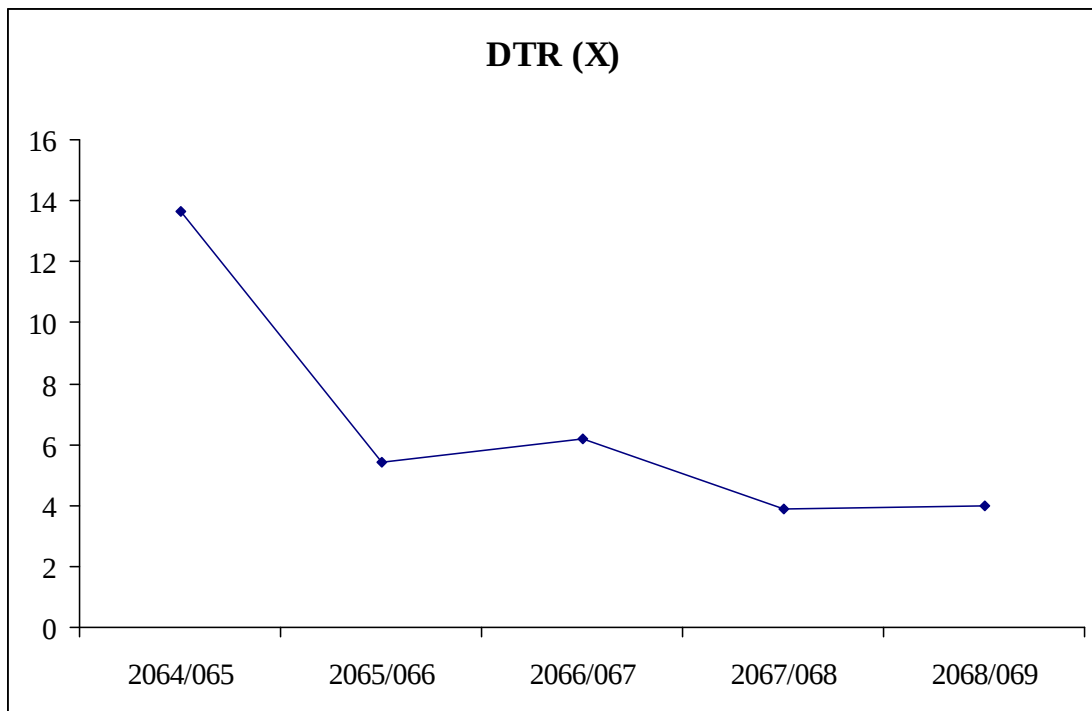
Year	Sales	Debtors & receivable	Current Ratio (X)
2064/065	11663.76	853.81	13.66
2065/066	13014.65	2407.33	5.406
2066/067	19007.20	3061.51	6.21
2067/068	20192.95	5218.57	3.87
2068/069	27644.62	6919.38	3.99
N=5			$\Sigma X = 33.140$

Source: Annual report of PF

$$\text{Average DTR } (\bar{X}) = \Sigma X / n = 33.140 / 5 = 6.63$$

$$\text{Standard deviation } (S_x) = 2.53$$

Figure 4.2.3



Source: Table 4.2.3

Debtors'; turnover Ratio of PF is decreasing order. The highest debtor's turnover Ratio was 13.66 times in 2064/065, whereas the smallest debtors turnover Ratio was 1.87 in 2067/068. The average debtor's turnover-Ratio is 6.63 times with standard deviation 2.53. High debtor's turnover Ratio is preferable, but it has not standard measure.

Due to sales in distance customers, debtors' turnover Ratio of PF is low. The goods in transit and payment in transit are the main reasons for these poor debtors' turnover Ratio.

4.1.3 Leverage Ratio

A firm raises funds from various sources to finance its assets. The proportionate relationship among these sources is the capital structured of the firm. Generally capital structure deals with the long-term financing sources. The capital structure is said to be leveraged with it has debt. The debt increases the risk of insolvency in the firm as it involves fixed charges irrespective of profitability. The failures to pay debt and fixed charges on time lead the firm into equation. However the leveraged capital

structure help to increase the return on owner's capital then the firm earns higher return than the interest rate. So there should be appropriate mix of debt and equation.

The leverage Ratio measures the financial risk as well as the ability of the firm in using debt for the benefit of shareholders. It studies the extent to which firm use debt in financing the assets. The capital structure of the PF is analyzed in this part of study.

4.1.3.1 Debt Ratio/Total Debt to Total Assets Ratio

Debt to total assets Ratio measures the position of the firm's assets finances by creditors; it is calculated by dividing total debt by total assets i.e.

$$\text{Debt to total assets Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

High debt Ratio represents a greater risk to creditors and also to shareholders and vice-versa.

Table 4.3.1 shows debt to total assets Ratio of PF for 5 years study period.

Table 4.3.1
DEBT to Total Assets Turnover Ratio of PF

(Nrs in Thousands)

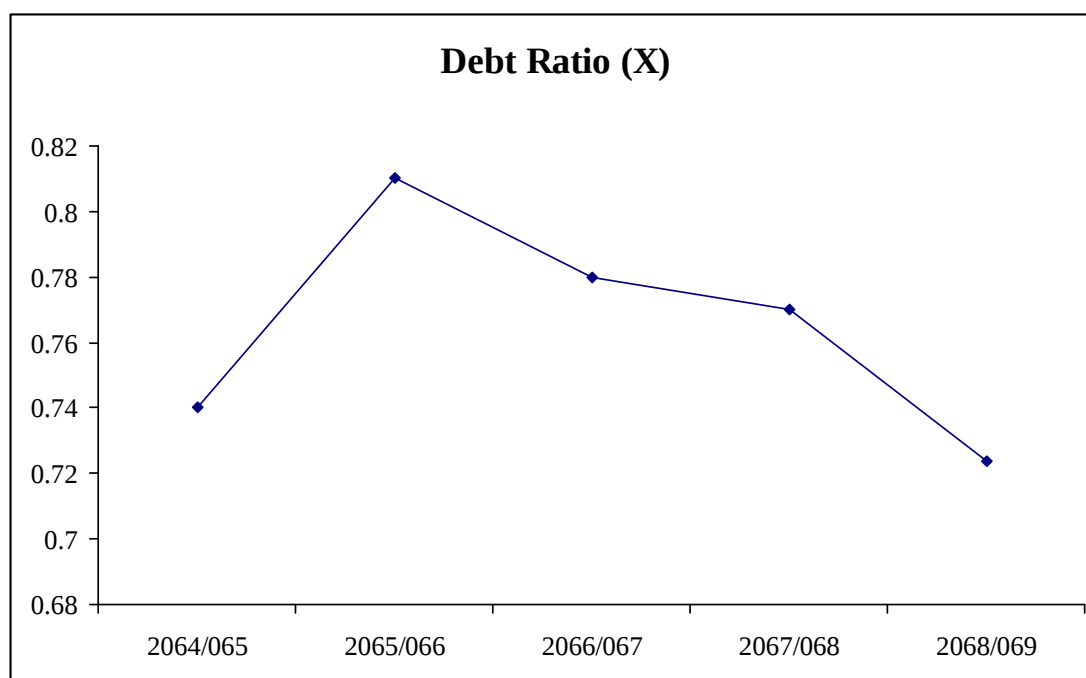
Year	Total debt	Total Assets	Debt ratio (X)
2064/065	4415.35	5961.02	0.74
2065/066	10525.13	13016.81	0.81
2066/067	12391.36	15861.43	0.78
2067/068	15595.10	20150.04	0.77
2068/069	15427.32	21307.70	0.724
N=5			$\Sigma X = 3.82$

Source: Annual report of PF

$$\text{Average Debt Ratio } (\bar{X}) = \Sigma X / n = 3.82 / 5 = 0.764$$

$$\text{Standard deviation } (s_x) = 0.032$$

Figure 4.3.1



Source: Table no. 4.3.1

As observed in above table 4.3.1, PF'S average debt Ratio is 0.76 or 76% the Ratio is mostly consistent for the study period with insignificant standard deviation of 0.032 or 3.2%. The lowest debt Ratio of 2068/069 the highest debt Ratio is 81% which is in 2065/066.

In the overall observation of debt to total assets ratio, the total debt of PF is more than 72% of its total assets, which is significantly higher than general acceptable debt Ratio 50% although the firm is has applied huge portion of assets as debt, it is not counted as risky firm.

4.1.3.2 Debt to Equity Ratio

The debt to equity Ratio is calculated by using the following formula.

$$\text{Debt to Net worth Ratio} = \frac{\text{Total Debt}}{\text{Networth}}$$

Total debts include current liabilities and long-term debts. Net worth includes corporations equity capital and equity shredders claims.

The debt to equity Ratio indicates the extent of debt financing in the business the extent of debt financing in the business compared to net-worth financing in other words, the debt to equity Ratio indicates the contribution of debt capital and equity in the total investment.

Generally, a very high debt or equity Ratio is unfavorable from the unexpressed point of view because this is generally associated with the flexibility in the corporation operations due to increasing interference of the creditors and this situation is worse when the enterprise has earning rate lower than the interest rate of the debts. The enterprise in this situation called highly geared/leveraged and it is difficult for the enterprise to get further loans from the creditors.

On the other hand a very low debt to equity Ratio is disadvantageous from the owner's point of view. During the period of high profits, that is when the overall rate of earning is greater than the cost of debt, the owners could have earned larger earning by trading debts on equity policy. So an optimum debt to equity Ratio should be maintained which is generally determined on the basis of industry average of the firm's past records.

The following table could show the following debt equity Ratio of PF for last 5 years.

Table 4.3.2
Debt to Equity Ratio

(Nrs in Thousands)

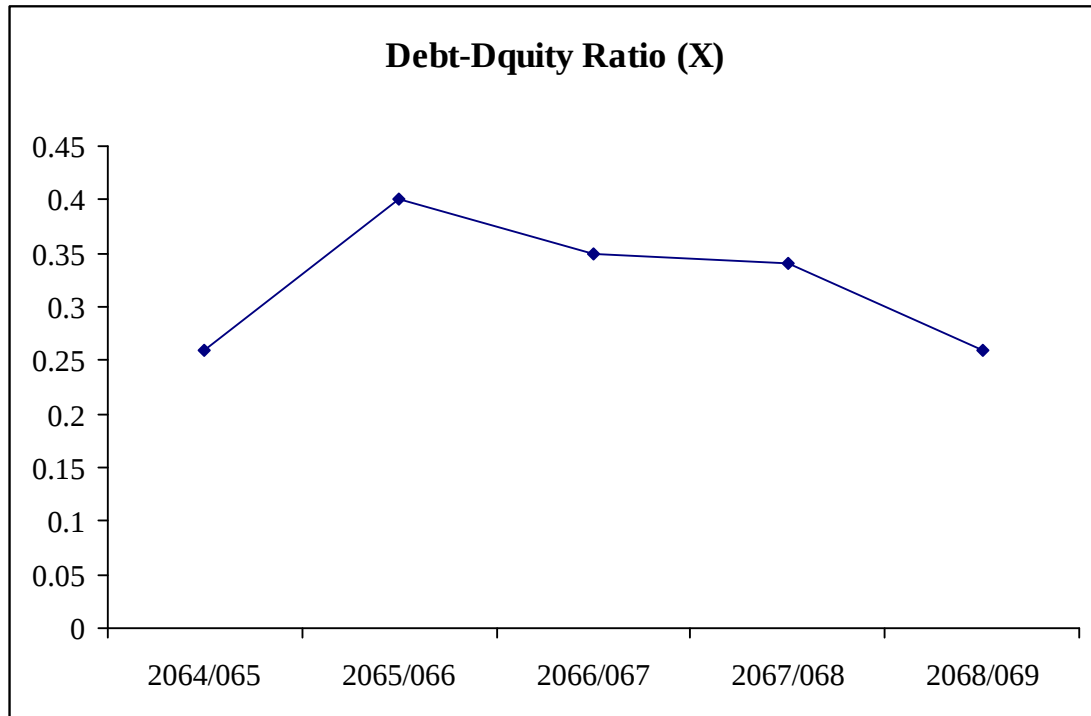
Year	Total debt	total equity	Debt equity ratio (X)
2064/065	4415.35	16660.2	0.26
2065/066	10525.13	25725.10	0.40
2066/067	12391.36	35220.4	0.35
2067/068	15595.10	45978.5	0.34
2068/069	15427.32	58994.5	0.26
N=5			$\Sigma X = 0.323$

Source: Annual report of PF

Average debt-equity ratio $(\bar{X}) = \Sigma X / n = 1.615 / 5 = 0.323$

Standard deviation $(s_x) = 0.05$

Figure 4.3.2



Source: Table 4.3.2

Debt to equity Ratio for the year 2064/065 through 2068/069 is 26%, 40%, 35% and 34% respectively. The average debt equity Ratio for the study period is 32.3% with standard deviation of 5%. Debt to equity Ratio of 2065/066 is quite high in the study period. Even the firm did not add any external equity from its owners, it could success to continue constant debt Ratio. Fir borrowed huge amount of secured and unsecured loan from commercial banks, so the debt was increased sharply, whereas annual retention of profit also increased the ownership capital proportionately to the increment to debt. In the last study period, the amount of debt was decreased; sot the best to equity Ratio for this period is the lowest among the other years.

4.1.3.3 Interest Coverage Ratio

Interest coverage Ratio is also known as time interest earned (TIE Ratio). It measures the firm's financial efficiency to make payment on time; otherwise, it would face the liquidity problem. A loan financier always looks the TIE Ratio for security purpose while providing loan. Some financiers have developed the standard measure of TIE

Ratio. But, in general it has not actual standard measure of TIE Ratio for general acceptance. Simply high TIE Ratio is better one. If a fiord does not use debt then the TIE Ratio for that firm is useless. If a firm uses debt Ratio then it has to be more conscious about this Ratio.

Interest Coverage Ratio could be calculated by using the following formula.

$$\text{TIE Ratio} = \frac{EBIT}{Interest}$$

If a firm uses high debt Ratio for profitable opportunity then the firm has not any difficulties from debt. But, from financer point of view, they feel risky to provide these firms, which are already levered.

TIE Ratio of PF could be shown by the following table 4.3.3

Table 4.3.3
Times Interest Earned

(Nrs in Thousands)

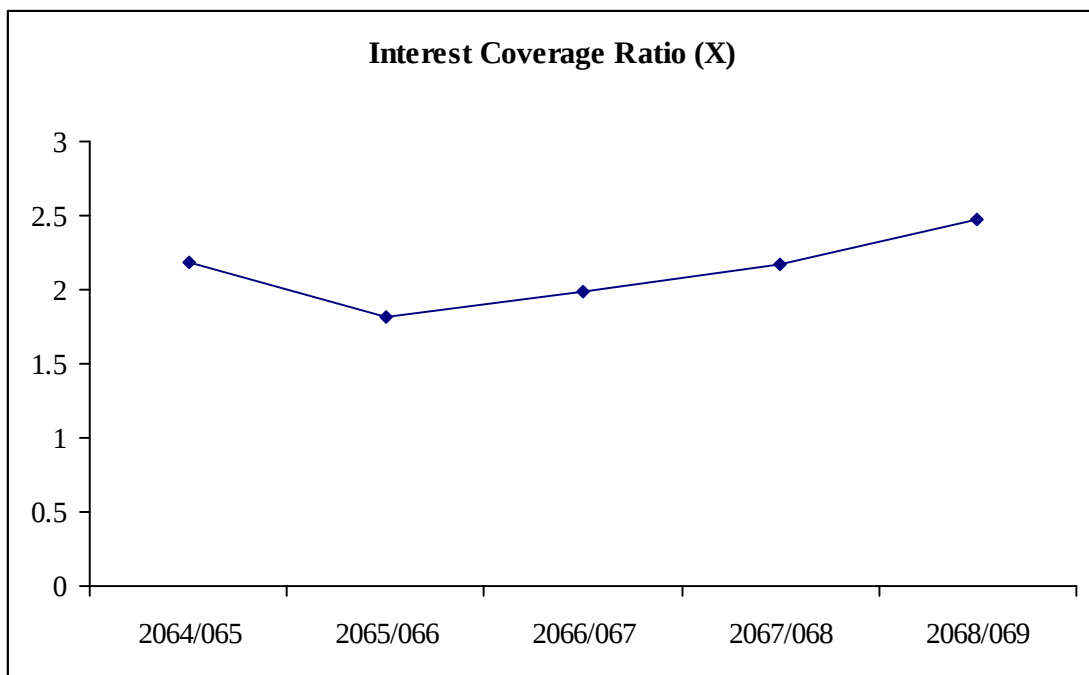
Year	EBIT	Interest	TIE (X)
2064/065	1140.36	520.69	2.19
2065/066	1783.15	977.48	1.82
2066/067	2576.85	1293.86	1.99
2067/068	2813.78	221295.09	2.17
2068/069	3187.66	1284.67	2.48
N=5			$\Sigma X = 10.66$

Source: Annual report of PF

Average TIE Ratio $(\bar{X}) = \Sigma X / n = 10.66 / 5 = 2.13$

Standard deviation $(s_x) = 0.25$

Figure 4.3.3



Source: Table 4.3.3

TIE Ratio of PF for the last five years from 2064/065 to 2068/069 are; 2.19, 1.82, 1.99, 2.17 and 2.48 times. These figures indicate that the firm's interest-payment capacity is in increasing. The firm could pay its interest as well as could repay the loan from its operating profit. Average TIE Ratio is 2.13 times with standard deviation of 0.25. The Ratio could be considered reasonable for PF because it has huge transition with few share holders' fund. The firm has no any liquidity problems; it could get enough amount of financing at the present condition.

4.1.3.4 Debt to Capital Employed Ratio

It is the Ratio, Which analyses the proportion of permanent debt in total permanent capital. Firm should manage its permanent capital at any cost, but this total permanent capital should not dominate by the debt capital. Total capital employed includes total shareholders fund and long-term debt. So, the debt includes only long-term debt. Short-term debt could not be used for permanent requirement.

The debt to capital employed Ratio could be calculates by using the following formula;

$$\text{Debt to Capital employed Ratio} = \frac{\text{Long Term debt}}{\text{Capital Employed}}$$

It has not any standard measure of debt to capital employed Ratio. A firm having profitable investment could be benefited by using the high debt Ratio, whereas, the having loss could not be benefited by using high debt. Debt to capital employed Ratio of PF is revealed by the following table 4.3.4.

Table 4.3.4
Debt to capital Employed Ratio

(Nrs in Thousands)

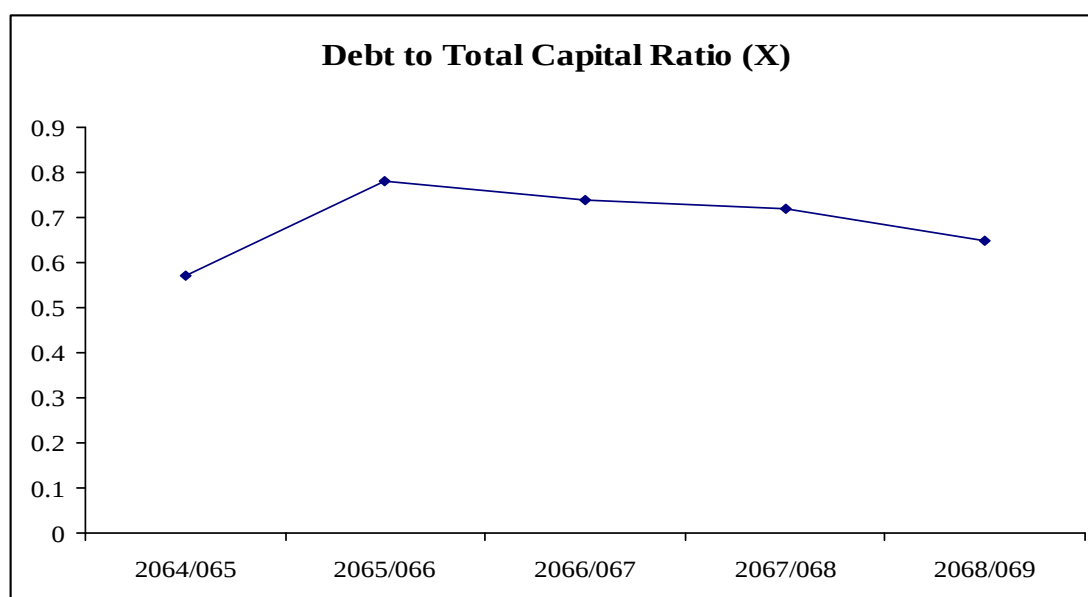
Year	Long term debt	Capital employed	Debt total capital employed ratio (X)
2064/065	2455.55	4121.57	0.57
2065/066	8959.52	11532.03	0.78
2066/067	9992.8	13514.82	0.74
2067/068	12004.08	16601.93	0.72
2068/069	10997.34	16896.78	0.65
N=5			$\Sigma X = 3.46$

(Source: Annual report of PF)

Average capital employed ratio $(\bar{X}) = \Sigma X / n = 3.45 / 5 = 0.69$

Standard deviation $(s_x) = 0.49$

Figure 4.3.4



Source: Table 4.3.4

Debt to capital employed Ratio of PF for the last five years are; 0.57, 0.78, 0.74, 0.72 and 0.65. These figures should be considered nearly consistent over the study period. Average debt to capital employed Ratio is 0.69 with standard deviation of 0.49. It means, out of the total permanent capital more than two third is occupied by debt.

4.1.4 Profitability Ratio

Profit is the ultimate goal of a business firms. Success of the failure of the firm depends on it alit to generate return from the employed resources. The profitability analysis is thus, necessary for assessing the managerial efficiency in generating surpluses for the survival of the firm.

PF being a private enterprise may not always emphasize on maximization of profit. But it should always ensure its continuous survival and growth.

At the present study has basically been undertaken with the objectives of assessing the profitability of PF, we propose in this section to confine our analysis to the rate of return only. The data are collected from the financial reports of the concerned corporation. In the sectors that follow we make use of sever measure of profitability.

- a) Gross profit as percentage of sales

This will help to measure the growth profit margin on sales.

- b) Net profit as percentage of sales
This indicates the net return on sales.
- c) Net operating profit as percentage of sales.
This is indicative of the operating profit on sales.
- d) Net profit other tax as percentage of captor employed.
It is an indicator of the net return of the capital employed in the business.
- e) Net profit after tax as percentage of net worth.
This measures the return or shareholders quality or the owned funds.
- f) Dividend as percentage of total paid up capital.
It indicates the rate of return on owner's equity capital.
- g) Dividend as percentage of net worth
It is a measure of the net profit distributed in relation to shareholder's equity.

4.1.4.1 Gross Profit Ratio

The gross profit is calculated in the following manner.

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Sales}}$$

The gross profit ratio reflects the percentage of gross profit. Ratio reflects the percentage of gross profit relation to sales. A high gross profit margin indicates the efficiency of management in reducing the cost of purchase and production, other things remaining the same. In fact the high or low gross profit Ratio may be the outcome of several reasons. For example it may be due to change in selling price or sales volume, cost of goods sold remaining constant. So, a high or low gross profit ratio should be carefully investigated before embarking upon forming some spontaneous opinion.

In the following table the gross profit as percentage of net sales has been presented.

Table 4.4.1
Gross Profit Margin of PF

(Nrs in Thousands)

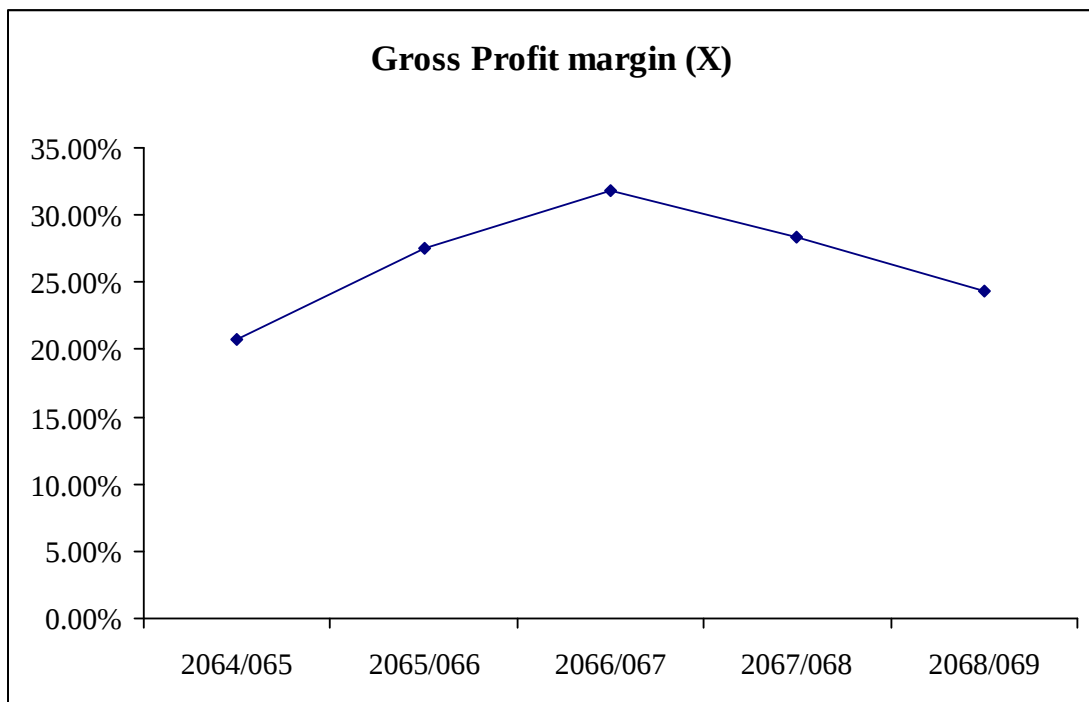
Year	Gross Profit	Sales	Gross profit margin (X)
2064/065	2421.33	11663.76	20.8%
2065/066	3573.54	13015.45	27.5%
2066/067	5885.24	19007.20	31.80%
2067/068	5704.74	20192.95	28.3%
2068/069	6711.38	27649.62	24.3%
N=5			$\Sigma X = 131.9\%$

Source: Annual report of PF

Average Gross profit margin $(\bar{X}) = \Sigma X / n = 131.9 / 5 = 26.38\%$

Standard deviation $(s_x) = 5.44$

Figure 4.4.1



Source: Table 4.4.1

Gross profit margin is nearly the analysis of contribution margin of a firm. PF could achieve hear margin in 2066/067 i.e. 31% just after getting the peak margin, it was badly decreased to 28.3% in 2067/2068 and 2068/2069 i.e. 24.3%. After all the main reasons for this fluctuation is the fluctuating value of raw martial.

The high or low gross profit margin depends upon sales revenue and cost of goods sold. Sales revenue depends upon sales volume and selling price of the product.

Thus, gross profit Ration of PF was found to he satisfactory and the most probable reasons were found to be the proper planning & control mechanism, suitable cost control measure and consistent price changed.

Although gross profit margin Ratio indicates the general efficiency of management in the purchasing department, it does not indicate the overall profitability result in relation to sales. For example, it is just possible that the gross profit Ration of an enterprise is pretty high but at the same time its operating expenses (selling and administrative) may also be higher and under this situation, the conclusion drawn may not be correct and fair. In other words, gross profit Ratio does not include other expenses and other incomes and portrays only the partial picture of the profitability of a concern. So the profitability Ratios should be considered.

4.1.4.2 Net Profit Margin

The net profit Ratio measures the relationship between the net profit and sales of an enterprise symbolically.

$$\text{Net Profit margin} = \frac{\text{Net profit after taxes}}{\text{Sales}}$$

The net profit margin indicates management's ability to pirate the enterprise with sufficient success not only to recover from revenues of the period, the cost of merchandise or service, the expenses of operating the business including depreciation and the cost borrowed finds. But also the leave a margin of seasonable compensation to the owners for providing their capital risk.

Generally, a high profit margin ensures adequate return to the owners as well as strength to with stand adverse economic conditions like rising cost of production falling sales prizes or declining the demand for the product, while the low profit

margin is influenced by the gross profit margin to the greater extent, a reasonable gross profit margin is necessary to earn adequate net profit. Both the gross profit margin and the net profit margin should be jointly evaluated to interpret the firm's profitability more meaningful. The net profit margin of PF is revealed from table 4.4.2.

Table 4.4.2
Net Profit Margin

(Nrs in Thousands)

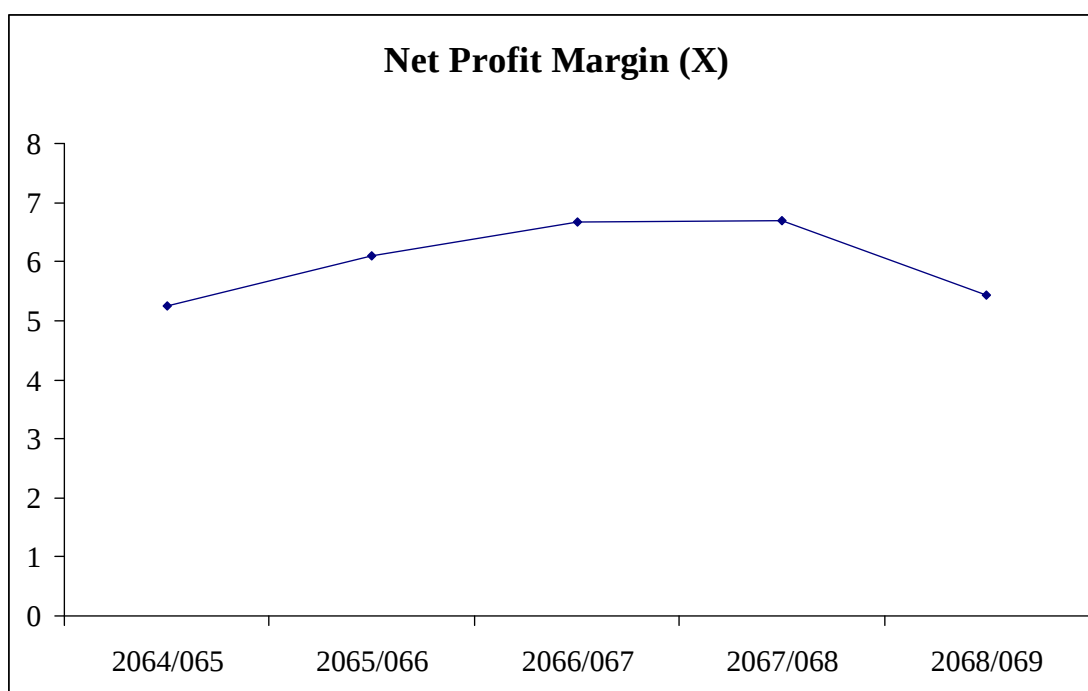
Year	Net profit	Sales	Net Profit margin (X)
2064/065	613.01	11663.76	5.25
2065/066	793.31	13015.45	6.09
2066/067	1268.4	19007.20	6.67
2067/068	1395.09	20192.95	6.7
2068/069	1642.99	27649.62	5.44
N=5			$\Sigma X = 30.88\%$

Source: Annual report of PF

Average Net Profit Margin $(\bar{X}) = \Sigma X / n = 30.88\% / 5 = 6.17\%$

Standard deviation $(s_x) = 0.59$

Figure 4.4.2



Source: Table 4.4.2

Above table shows that the net profit margin is not too fluctuating, because, its standard deviation is just 0.59% overall. Its trend is up ward, which is positive sign for future. But the net profit margin is not a comparable Ratio because the high turnover automatically decreases the net profit margin whereas the overall profitability is in increasing order.

4.1.4.3 Return on Equity (ROE)

Net profit after tax as percentage of net worth/share holder's equity can be computed by using the following formula.

$$\text{Return on Equity} = \frac{\text{Net profit after taxes}}{SHE}$$

This Ratio indicates how well the firm has used the resources of the owners to earn a satisfactory rate of return. This ratio is much significant the present as well as for the prospective shareholders in case of companies. A higher return of proprietary fund is sought for and represents sound management of the overall resources; this is sound mix of capital structure, assets mix and operating efficiency and vice versa. The return on equity of PF is revealed buy the table 4.4.3.

Table 4.4.3
Return on Equity of PF

(Nrs in Thousands)

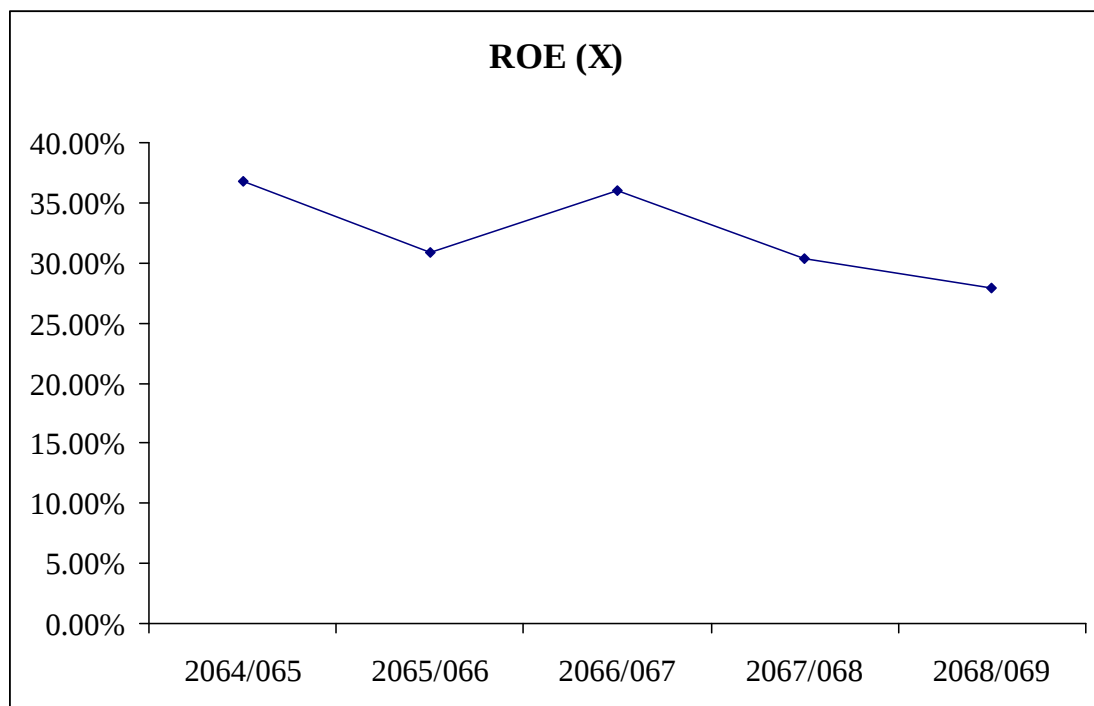
Year	Net Profit	Total Equity	ROE (X)
2064/065	613.01	1666.02	36.8%
2065/066	793.31	2572.51	30.84%
2066/067	1268.94	3522.04	36.03%
2067/068	1395.09%	4597.85	30.34%
2068/069	1642.99	5899.45	27.85%
N=5			$\Sigma X = 161.86\%$

Source: Annual report of PF

Average ROE $(\bar{X}) = \Sigma X / n = 161.86 / 5 = 32.37\%$

Standard deviation $(s_x) = 3.12$

Figure 4.4.3



Source: table 4.4.3

ROE of continue first three years are in increasing order, where as the ROE of last two years are in decreasing order. The average ROE of the firm 30.84% is too high return of owners. Although average firms are suffered from loss but the PF does tax not suffered from this problem? I have already mentioned that the major portion of sales is made outside Nepal. Therefore the local insurgency does not affect highly. ROE began from 36.8% in 2064/065, 30.84% in 2065/066, 36.03% highest rates in 2066/067, and 30.34% in 2067/068 and down to 27.85% in 2068/069. Deviation in return on equity is 3.12% that is not too high at present average rate of returns.

Although net profit after tax is in increasing order, the shore holder's equity is also in increasing order, thus the ROE is in decreasing order in last two years. The main reason of this is lower efficiency of retained profit than its usual common stock.

4.1.4.4 Return of Assets (ROA)

It is also known as return on investment (ROI). It measures the firm's total assets efficiency to making profit. Total assets consist both shareholders equity and debt capital, therefore the net profit should be the profit of both debt and equity i.e. earning before interest but after tax, by myopically.

$$ROA = \frac{\text{Net profit after taxes}}{\text{Total Assets}}$$

Higher ROA shows better efficiency of a firm. This is possible only when a firm could utilize its assets optimally. If a firm uses huge amount of assets to make similar level of profit then the ROA of the firm will be unsatisfactory.

One important thing is that a firm's ROA exceed the cost of capital, otherwise the firm could not get benefit from use of debt capital and could not satisfy the shareholders. The following table shows ROA of PF.

Table 4.4.4
Return on Assets of PF

(Nrs in Thousands)

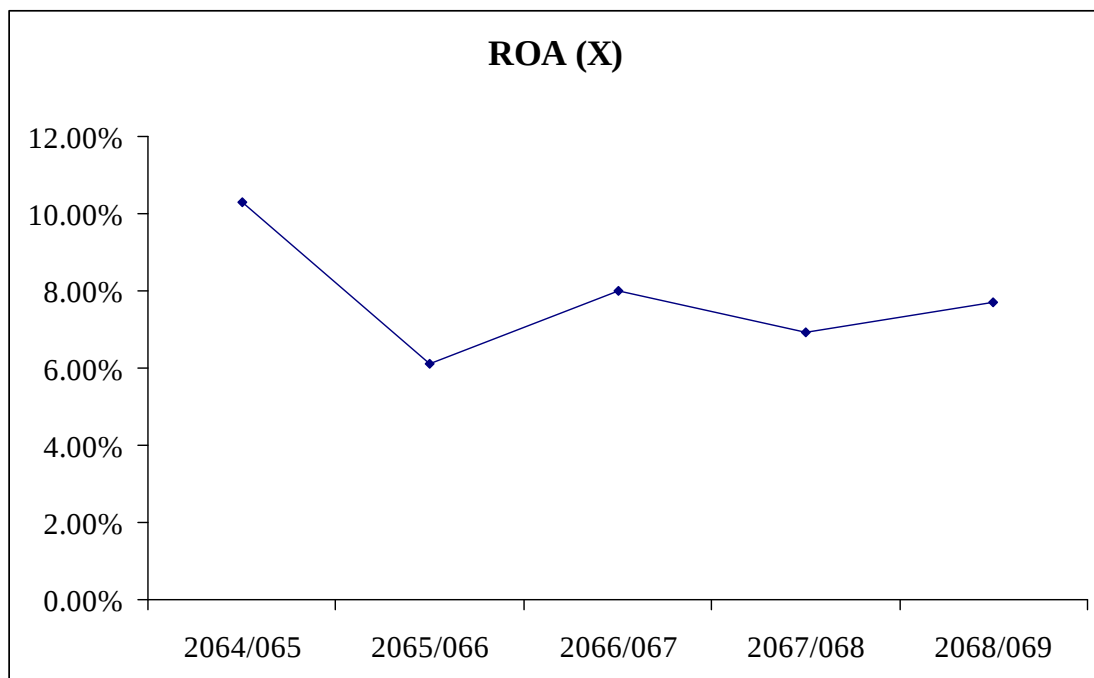
Year	Net Profit	Total Assets	ROA (X)
2064/065	613.01	5961.02	10.28%
2065/066	793.31	13016.81	6.095%
2066/067	1268.94	15851.43	8.0%
2067/068	1395.09	20150.04	6.92%
2068/069	1642.99	21307.70	7.70%
N=5			$\Sigma X = 38.995\%$

Source: Annual report of PF

Average ROA $(\bar{X}) = \Sigma X / n = 38.995 / 5 = 7.80$

Standard deviation $(s_x) = 0.95$

Figure 4.4.4



Source: Table 4.4.4

ROA of PF is in increase trend with standard deviation of 0.95, which is good sign of future potentiality. Second years and 4th years ROA are smaller than the remainders

because of the sudden addition have fixed assets. Firms major portion of debt has below 6% after tax cost of debt therefore the efficiency of these borrowing are also not bad. Although, researcher mentioned the concept of ROA as earning to total assets use in balance sheet. Whereas researcher have calculated the earning of shareholders equity. This is eight analyses of total assets earning. Researcher gets favorable condition on it.

It means, if researcher use the earning as earnings before interest and after tax then the result will be more favorable for the firm.

4.2 Regression Analysis

Out of the various statistical tools to analyze a study researcher have chosen regression analysis finds the impact of change in dependent variable by changing independent variable. The literal the literal or dictionary meaning of the word "Regressing is stepping back or returning to the average value. The term was first used by British biometrician sir Francis Galton studies he made on estimating the extent to which the status of the sons of tall parents regents or regress back to the mean stature of the population. He studied the relationship between the heights of about 1000 fathers and sons and published the results in a paper "Regression towards mediocrity in hereditary stature".

Regression analysis, in the general sense means the estimations or prediction of the unknown value of one variable from the known value of other variable. It is one of the very important statistical tools, which is extensively used in almost all sciences, natural, social and physical. It is specially used in business and economics to study the relationship between two or more variables that are related casually and for estimation of demand and supply curve, cost function and production and consumption function.

Prediction and estimation is one of the major problems in almost spheres of human activity. The estimation and prediction of future production, consumption, prices, investment, sales, profit and income etc. are of paramount importance to the businessman and economist. As estimation of other things some financial factors are also could be predicted by suing their statistical tool. Researchers emphasis ratio analysis in financial statement analysis. The major theme of ratio analysis is return on equity (ROE). The above all ratios directly or indirectly related to ROE. Therefore the

various relationships could be shown individually with ROE. Calculating regression line could show these relationships.

As we know that ROE is depended with various other variables (ratios) we could mention their relation as under:

ROE = F (Current ratio, total assets turnover ratio, inventory turnover ratio, debtors turnover ratio debt ratio ROA, net profit margin etc.)

Change in this individual ratio makes certain changes in ROE. The relation could be shown by two ways. One way is simple way by taking one independent variable and dependent variable and another way is multiple regressions by taking all independent variables and ROE.

4.2.1 Simple Regression Analysis

In simple regression analysis there are two types of variables. The variable whose value is influenced or is to be predicted is called dependent variable and the variable, which influences the value or is to use for prediction is called independent variable. In regression analysis independent variable is also known as regression of predictor or explanatory, which the dependent variable is also known as, regressed or explained variable.

4.2.1.1 Simple Regression between ROE and Current Ratio

Current Ratio is related to working capital policy. If a firm maintains huge amount idle working capital then the firm should bear unnecessary cost of financing, which decreases the annual benefit as well as return on equity. Therefore on equity. Therefore return on equity should be considered as dependent variable and current assets should be considered as independent variable.

Regression equation (y) on (x) could be formulated as under.

$$y - \bar{y} = b_y x (X - \bar{X})$$

Where, y = dependent (ROE)

X = independent (Current Ratio)

Table 4.5.1

Year	X	Y	XY	X ²
2064/065	1.60	36.8	58.88	2.56
2065/066	3.58	30.84	110.41	12.82
2066/067	3.43	36.03	123.58	11.76
2067/068	3.17	30.34	96.18	10.05
2068/069	2.91	27./85	81.04	8.47
N=5	14.69	161.86	470.09	45.66

Source: Annual report of PF

$$\left(\overline{X}\right)=\frac{\Sigma x}{n}=\frac{14.69}{5}=2.938$$

$$\left(\overline{y}\right)=\frac{\Sigma y}{n}=\frac{161.86}{5}=32.372$$

$$b_{yx}=\frac{N\Sigma XY-\Sigma X\Sigma Y}{N\Sigma X^2-(\Sigma X)^2}$$

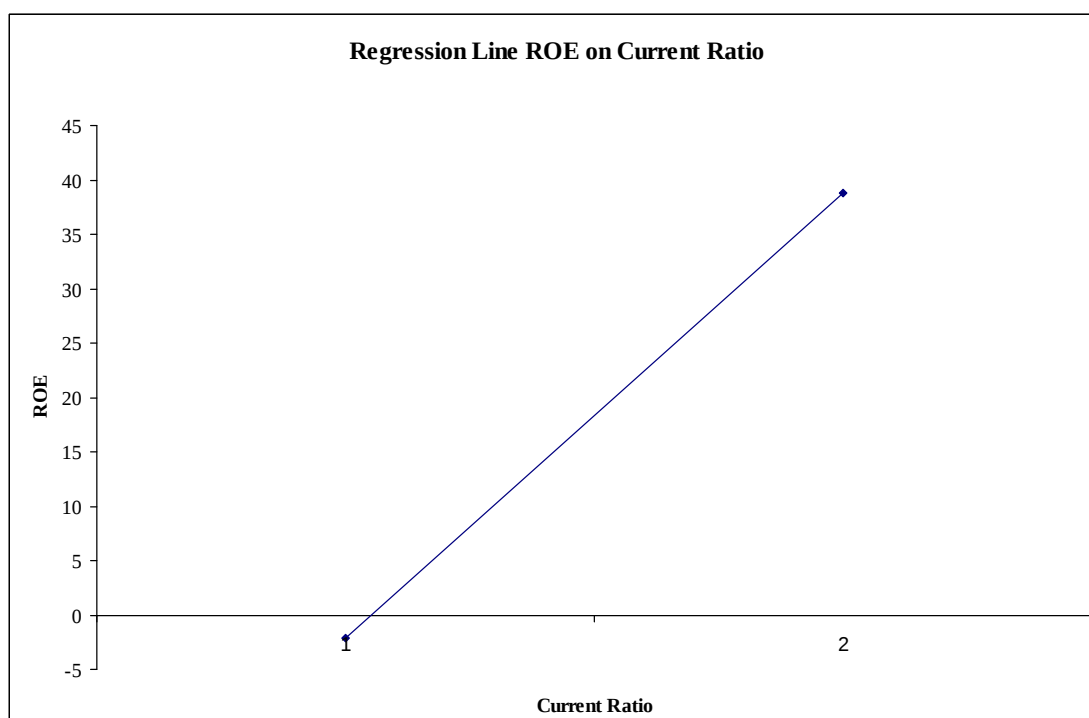
$$\frac{5\times 470.09-14.69\times 161.86}{5\times 45.66-14.69\times 14.69}$$

- 2.18

$$y=32.372=-2.18(x-2.938)$$

$$y+2.18n=38.78 \text{ (Regression line)}$$

Figure 4.5.1



Source: Table no. 4.5.1

By defaults, above slope seems to be positively correlated, if other things remain constant then the ROE is decreased in the current Ratio is increased and vice versa. Increment in current ratio means increment in current or idle assets, which increases the business expenses hence the profitability of the business is increased.

4.2.1.2 Regression between ROE and Total assets turnover Ratio

Total assets turnover ratio shows the utilization of assets to make sales. If the utilization of assets is sound or optimal then the return on equity will be also good. Therefore we can say that correlation coefficient between total assets turnover ratio and return on equity is positive. In ROE and total assets turnover, ROE is dependent to total assets turnover ratio. The relation could be shown by the following linear equation.

Regression equation ROE (y) on total assets turnover ratio (x) is,

$$Y - \bar{Y} = b_{yx}(X - \bar{X})$$

Where, y= dependent (ROE)

X = Independent (Total Assets Turnover Ratio/ TATR)

Table No. 4.5.2

Year	X	Y	XY	X ²
2064/065	1.15	29.16	33.53	1.32
2065/066	0.99	30.84	30.53	0.98
2066/067	1.19	36.03	42.87	1.42
2067/068	0.91	30.34	27.61	0.83
2068/069	1.29	37.85	48.83	1.66
N=5	5.53	154.22	134.55	6.21

(Source: Annual report of PF)

$$\left(\bar{X}\right)=\frac{\Sigma x}{n}=\frac{5.53}{5}=1.106$$

$$\left(\bar{y}\right)=\frac{\Sigma y}{n}=\frac{154.22}{5}=30.844$$

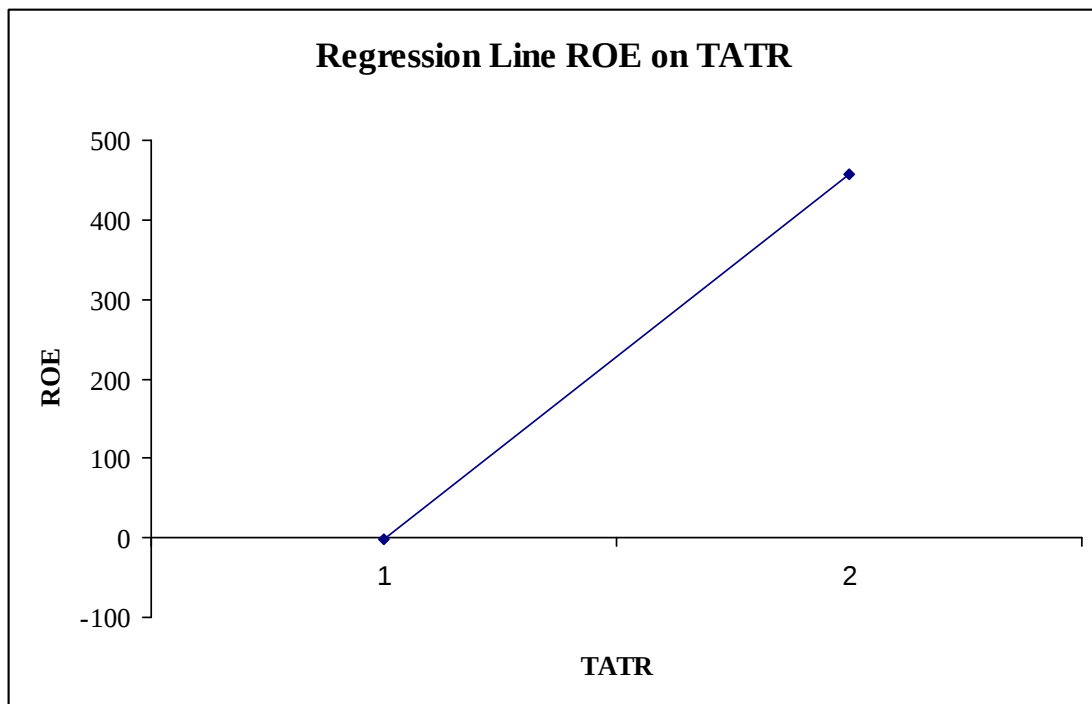
$$\begin{aligned} \text{by } x &= \frac{N\Sigma XY - \Sigma X\Sigma Y}{N\Sigma X^2 - (\Sigma X)^2} \\ &= \frac{5 \times 134.55 - 5.53 \times 154.22}{5 \times 6.21 - 5.53 \times 5.53} \\ &= -384 \end{aligned}$$

Hence,

$$y = 30.84 = -384(x - 1.11)$$

$$y + 384x = 457.08 \text{ (Regression line)}$$

Figure 4.5.2



Source: Table 4.5.2

The slope of ROE on total assets turnover Ratio seems to be down warded, which shows the negative relation between ROE and total Assets Turnover Ratio. As we know that TATR and NP margin are the product of ROA, and ROA and Equity Multiplies are the product of ROE. Therefore, correlation between ROE and TATR should be positive. Therefore, by default, the above slope does not show the accurate relation between these two variables. This kind of correlation is called "Insignificant Correlation".

4.2.1.3 Regression between ROE and Inventory Turnover Ratio

Excess holding of inventory creates excess operating cost. Therefore to increase ROE firm should keep minimum level of inventory. But at the time of maintaining inventory, the requirement of firm should be ignored. Higher the turnover ratio lower will be the inventory to make similar level of sales or greater will be the sales by keeping similar level of inventory. Therefore, ROE is fully affected by inventory turnover ratio. We could know the impact of inventory turnover ratio of ROE by consulting regression equation ROE on inventory turnover ratio i.e. Regression equation ROE (y) on inventory turnover (x).

$$Y - \bar{Y} = by_x (X - \bar{X})$$

Where, y = Dependent (ROE)

X = Independent (Inventory Turnover Ratio/ITR)

Table 4.5.3

Year	X	Y	XY	X ²
2064/065	2.92	29.16	85.15	8.53
2065/066	3.32	30.84	102.39	11.02
2066/067	2.66	36.03	95.84	7.07
2067/068	3.13	30.34	94.96	9.79
2068/069	4.08	37.85	154.43	16.65
N=5	16.12	154.22	532.77	53.07

Source: Annual report of PF

$$(\bar{X}) = \frac{\sum x}{n} = \frac{16.12}{5} = 3.22$$

$$(\bar{y}) = \frac{\sum y}{n} = \frac{154.22}{5} = 30.844$$

$$by_x = \frac{N\sum XY - \sum X \sum Y}{N\sum X^2 - (\sum X)^2}$$

$$= \frac{5 \times 532.77 - 16.12 \times 154.22}{5 \times 53.07 - 16.12 \times 16.12}$$

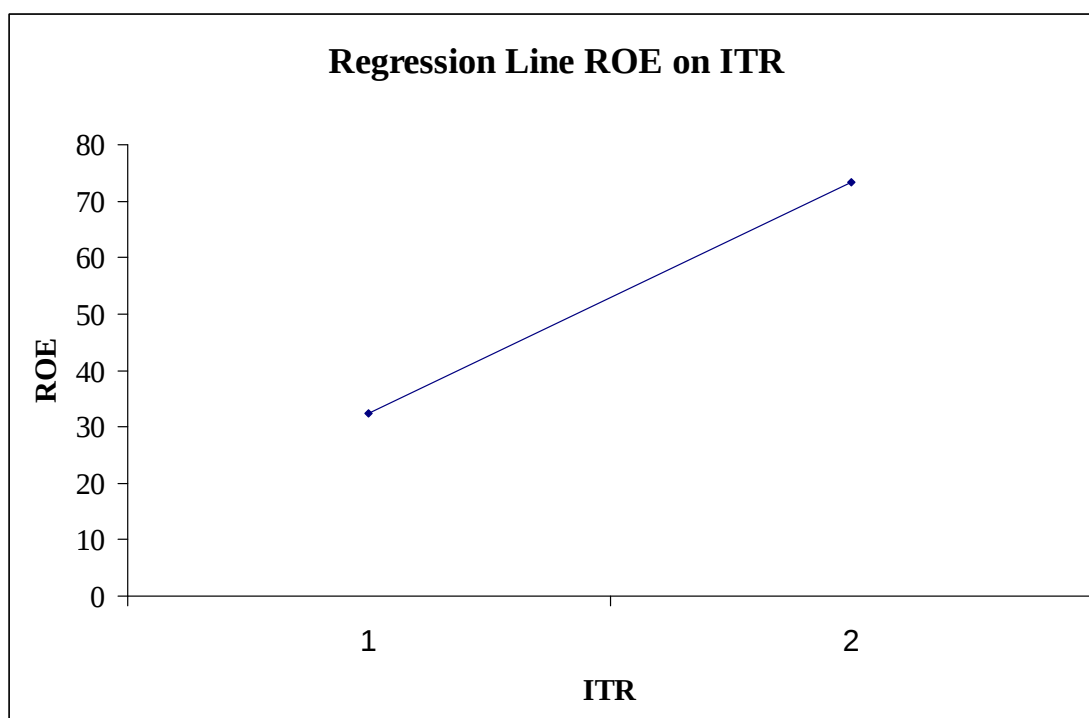
$$= 32.36$$

Hence,

$$y = 30.84 = -32.36(x - 3.22)$$

$$y - 32.36x = 73.36 \text{ (Regression line)}$$

Figure 4.5.3



Source: Table 4.5.3

Effect of change in ROE due to change in Inventory Turnover Ratio is smooth upward (positive). It shows that the inventory system of the firm is sound if it is utilized optimally. High level of inventory requires high opportunity cost to maintain it; however, instability in price of material would not affect the firm negatively.

4.2.1.4 Regression between ROE and Debtors Turnover Ratio

Debtors are created by credit sales. Higher the credit sales, greater will be the debtors. If a firm makes relax policy in its credit management than the firm should bear unnecessary cost relating to credit these are bad debts, collection expenses and the cost of carrying account receivable. It is compulsion to make credit sales even the above-mentioned costs are created, but the firm should consider its potentiality and capacity. In other words, a firm should be able to make high sales without extending its average collection period. High debtor's turnover ratio is preferable for profitability reason. Therefore, to increase ROE, debtor's turnover ratio should be increased. This relationship could be shown by regression equation of ROE on debtor's turnover ratio.

Regression equation ROE (y) on total assets turnover ratio (x) is $Y - \bar{Y} = by x (X - \bar{X})$

Where, y = Dependent (ROE)

x = Independent (Debtors Turnover Ratio/DTR)

Table 4.5.4

Year	X	Y	XY	X ²
2064/065	9.69	29.16	282.56	93.89
2065/066	5.28	30.84	162.83	27.88
2066/067	6.21	36.03	223.75	38.56
2067/068	3.17	30.34	96.18	10.05
2068/069	3.99	37.85	151.02	15.92
N=5	28.34	154.22	916.34	186.3

Source: Annual report of PF

$$(\bar{X}) = \frac{\sum x}{n} = \frac{28.34}{5} = 5.67$$

$$(\bar{y}) = \frac{\sum y}{n} = \frac{154.22}{5} = 30.844$$

$$\text{by } x = \frac{N\sum XY - \sum X \sum Y}{N\sum X^2 - (\sum X)^2}$$

$$= \frac{5 \times 916.34 - 28.34 \times 154.22}{5 \times 186.3 - 28.34 \times 28.34}$$

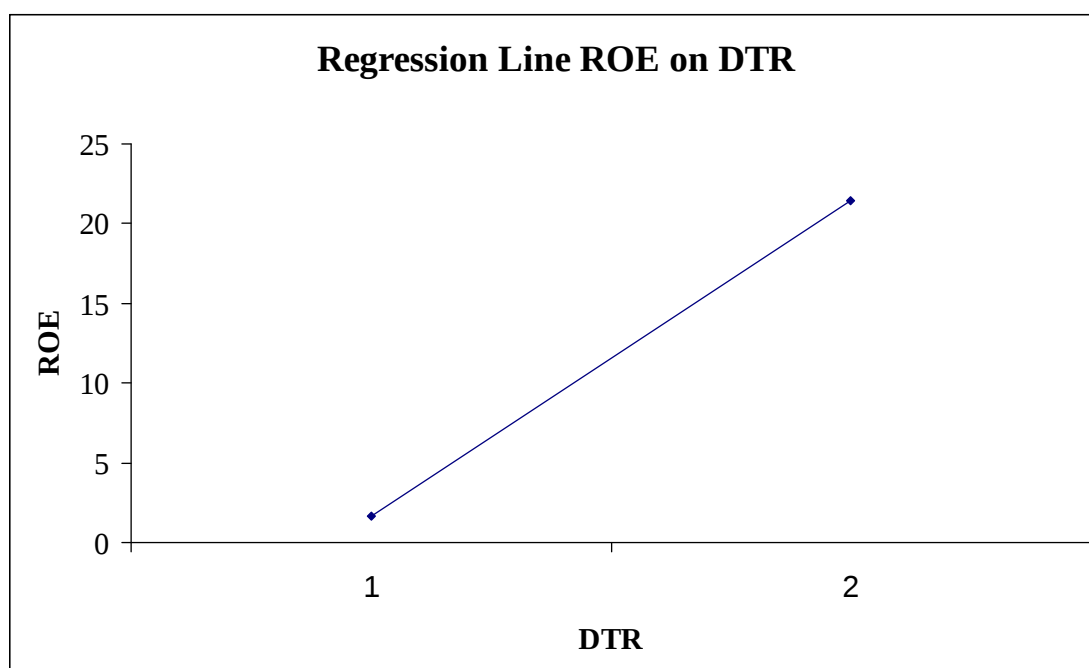
$$= 1.65$$

Hence,

$$y = 30.84 = -1.65(x - 5.67)$$

$$y - 1.65x = 31.48 \text{ (Regression line)}$$

Figure 4.5.4



Source: Table no. 4.5.4

Debtors' turnover ratio is the analysis to effectiveness of debtors to make sales. If a firm could make high sale with using lower level of debtors then its expenses of receivable will be low which helps to increase the profit for the year of the ROE.

4.2.1.5 Regression between ROE and ROA

ROA measures the performance of assets to make profit. If the assets utilization in business firm is optimal then the ROA will be greater. Out of the ROA, the equity holder that is known as ROE claims major portion and the remaining is distributed to debt holder. Therefore the changes in ROE are fully affected by the changes in ROA. This relation could be shown by regression equation ROE on ROA.

Regression equation ROE (y) on ROA (x) is

$$Y - \bar{Y} = b_{yx}(X - \bar{X})$$

Where, y = Dependent (ROE)

X = Independent (ROA)

Table 4.5.5

Year	X	Y	XY	X ²
2064/065	6.03	29.16	175.83	36.36
2065/066	6.06	30.84	186.89	36.72
2066/067	7.97	36.03	287.16	63.52
2067/068	6.27	30.34	190.23	39.31
2068/069	7.70	37.85	291.44	59.29
N=5	34.03	154.22	1131.56	235.21

Source: Annual report of PF

$$(\bar{X}) = \frac{\Sigma x}{n} = \frac{34.03}{5} = 6.806$$

$$(\bar{y}) = \frac{\Sigma y}{n} = \frac{154.22}{5} = 30.844$$

$$b_{yx} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{N\Sigma X^2 - (\Sigma X)^2}$$

$$= \frac{5 \times 1131.56 - 34.03 \times 154.22}{5 \times 235.21 - 34.03 \times 34.03}$$

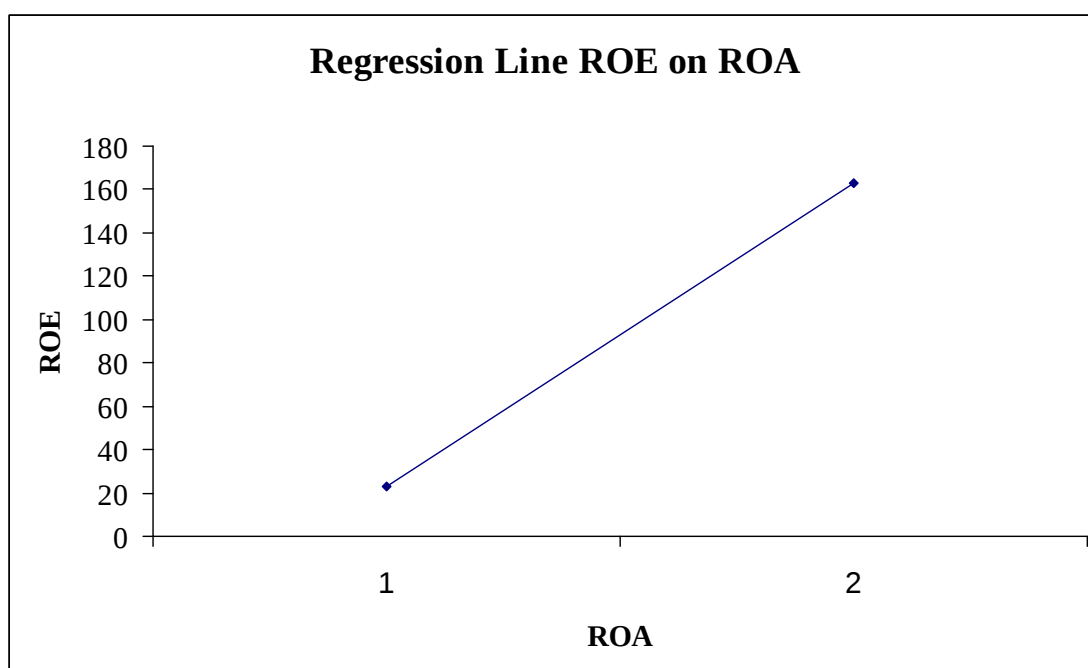
$$= 22.74$$

Hence,

$$y = 30.84 = -22.74(x - 8.51)$$

$$y - 22.74x = 162.67 \text{ (Regression line)}$$

Figure 4.5.5



Source: Table no. 4.5.5

The above line shows the high positive correlation between ROE and ROA, this is because of change in two variables in the same direction. A firm could maintain this kind of correlation only if it could utilize its assets optimally.

4.2.1.6 Regression between ROE and NP Margin

Net profit margin is relationship between the sales and net profit, NP margin is temporary tool of estimating sales price, even in the case of high amount of net profit, the figure of NP margin seems to be low because the sales is also increased equally. Even though the high NP margin creates high ROE. The regression analysis finds the impact of change in ROE by changing NP margin. Therefore, ROE is depended with NP margin.

Regression equation ROE (y) on NP margin (x) is,

$$Y - \bar{Y} = b_{yx}(X - \bar{X})$$

Where, y = Dependent (ROE)

x = Independent (NP margin Ratio)

Table 4.5.6

Year	X	Y	XY	X ²
2064/065	5.25	29.16	153.09	27.56
2065/066	6.09	30.84	187.82	37.09
2066/067	6.67	36.03	240.32	44.49
2067/068	6.7	30.37	203.28	44.89
2068/069	5.44	37.85	205.90	29.59
N=5	30.88	154.22	990.41	183.62

Source: Annual report of PF

$$(\bar{X}) = \frac{\Sigma x}{n} = \frac{30.88}{5} = 6.176$$

$$(\bar{y}) = \frac{\Sigma y}{n} = \frac{154.22}{5} = 30.844$$

$$b_{yx} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{N\Sigma X^2 - (\Sigma X)^2}$$

$$= \frac{5 \times 990.41 - 30.88 \times 154.22}{5 \times 183.62 - 30.88 \times 30.88}$$

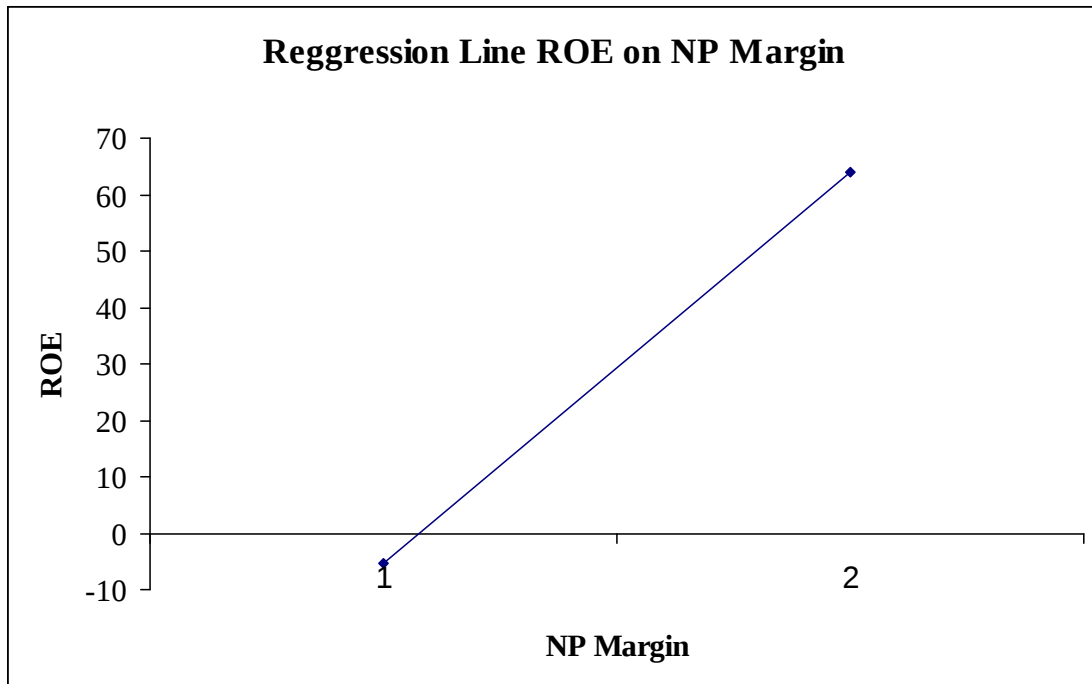
$$= -5.35$$

Hence,

$$y = 30.84 = -5.35(x - 6.176)$$

$$y + 5.35x = 63.88 \text{ (Regression line)}$$

Figure No. 4.5.6



Source: Table no. 4.5.6

The above line shows that the relationship between ROE and NP margin is negative or changes in sales make the changes in ROE in the opposite direction. As we know that ROE is the product of ROA and NP Margin, the negative relation between ROE should be the effect of high positive correlation between ROE and ROA.

4.2.2 Multiple Regressions Analysis

In multiple regression analysis two or more independent variables are used to estimate the values of a dependent variable. The general objectives of multiple regressions are:

1. To device an equation which provides estimates of the dependent variable from values of the two or more independent variables.
2. To obtain the measure of error involved in using this regression equation as a basis for estimation.
3. To obtain the measure of proportion of variance in the dependent variable accounted for or explained by the independent variables.

The first objective is accomplished by deriving an appropriate regression equation by the method of least squares. The second objectives are achieved through the computation of a standard error of estimate.

Regression Line ROE on Current Ratio & TATR

ROE (Y)	Current Ratio (X)	TATR (Z)
29.16	1.83	1.15
30.84	3.58	0.99
36.03	3.43	1.19
30.34	3.17	0.91
37.85	2.91	1.29
164.22	14.92	5.53

(Source: Annual report of PF)

$$\bar{X} = \Sigma X / n = 14.92 / 5 = 2.98$$

$$\bar{Y} = \Sigma Y / n = 164.22 / 5 = 32.84$$

$$\bar{Z} = \Sigma Z / n = 5.53 / 5 = 1.11$$

The regression Equation Y on X & Z

$$Y = b_1x + b_2z$$

The normal equations are;

$$\Sigma yx = b_1\Sigma x^2 + b_2\Sigma xz$$

$$\Sigma yz = b_1\Sigma xz + b_2\Sigma z^2$$

$$3.64 = 1.92b_1 + 0.11b_2$$

$$1.77 = 0.11b_1 + 0.09b_2$$

$$b_1 = 0.89$$

$$b_2 = 17.56$$

$$y = 0.89x + 17.56z$$

$$Y - 32.84 = 0.89 (X - 2.98) + 17.56 (Z - 1.11)$$

$$Y = 0.89X + 17.56Z + 10.77$$

Testing of the significant of partial regression coefficient

$H_0: b_1 = b_2 = 0$ i.e. regression equation of Y on X & Z is not significant.

$H_1: b_1 \neq b_2$ i.e. regression equation of Y on X & Z is significant.

$$SST = \Sigma y^2 = 59.03$$

$$\begin{aligned}
SSE &= \sum y^2 - b_1 \sum yx - b_2 \sum y^2 \\
&= 59.03 - 09 \times 83.64 - 17.56 \times 1.766 \\
&= 24.78 \\
SSR &= SST - SSE \\
&= 59.03 - 24.78 \\
&= 34.25
\end{aligned}$$

ANOVA Table

Source of variation	Sum Square	Degree of Freedom	Mean Sum of Square	F-Ratio
Regression	34.25	3-1=2	17.12	1.38
Residual	27.78	5.-3=2	12.39	
	59.03	4		

Critical value: F 0.05 (2,2) = 19.0

Since compound value of 'F' = 1.38 is less than the critical value for (2,2) degree of freedom at 5% level of significance, hence, H₀ is accepted i.e. the partial regression coefficients are not significant.

Regression Line ROE on Current Ratio & ITR

ROE (Y)	Current Ratio (X)	ITR (Z)
29.16	1.83	2.92
30.84	3.58	3.32
36.03	3.43	2.66
30.34	3.17	3.13
37.85		4.08
164.22	14.92	16.12

(Source: Annual report of PF)

yx	yz	zx	y ²	x ²	z ²
4.25	1.11	0.35	13.57	1.33	0.09
-1.19	-0.20	0.06	4.02	0.36	0.01
1.42	-1.78	-0.25	10.12	0.2	0.32
-0.47	0.22	-0.17	6.27	0.34	0.01
-0.37	4.31	-0.06	25.06	0.01	0.74
3.64	3.65	0.07	59.04	2.24	1.15

(Source: Annual report of PF)

$$\bar{X} = \Sigma X / n = 14.92 / 5 = 2.98$$

$$\bar{Y} = \Sigma Y / n = 164.22 / 5 = 32.84$$

$$\bar{Z} = \Sigma Z / n = 16.12 / 5 = 3.22$$

The Regression Equation Y on X & Z

$$Y = b_1x + b_2z$$

The normal equation are;

$$\Sigma yx = b_1\Sigma x^2 + b_2\Sigma xz$$

$$\Sigma yz = b_1\Sigma xz + b_2\Sigma z^2$$

$$3.64 = 1.24b_1 + 0.07b_2$$

$$3.65 = 0.07b_1 + 1.15b_2$$

$$b_1 = 2.92$$

$$b_2 = 0.1$$

$$y = 2.92x + 0.1z$$

$$Y - 32.84 = 2.92(X - 2.98) + 0.1(Z - 3.22)$$

$$Y = 2.92X + 0.1Z + 23.81$$

Testing of the significant of partial regression coefficient

H₀: b₁ = b₂ = 0 i.e. regression equation of Y on X & Z is not significant.

H₁: b₁ ≠ b₂ i.e. regression equation of Y on X & Z is significant.

$$SST = \Sigma y^2 = 59.03$$

$$SSE = \Sigma y^2 - b_1\Sigma yx - b_2\Sigma yz$$

$$\begin{aligned}
&= 59.03 - 2.92 \times 3.64 - 0.1 \times 3.65 \\
&= 48.04 \\
SSR &= SST - SSE \\
&= 59.03 - 48.04 \\
&= 10.99
\end{aligned}$$

ANOVA Table

Source of Variation	Sum Square	Degree of Freedom	Mean Sum of Square	F-Ratio
Regression	10.99	3-1=2	5.49	0.23
Residual	48.04	5-3=2	24.02	
	59.03	4		

(Source: Annual report of PF)

Critical Value: F 0.05 (2,2) = 19.0

Since compound value of 'F' = 1.38 is less than the critical value for (2,2) degree of freedom at 5% level of significance, hence, H₀ is accepted i.e. the partial regression coefficients are not significant.

Regression Equation ROE on Current Ratio & ROA

ROE (Y)	Current Ratio (X)	ROA (Z)
29.16	1.83	6.03
30.84	3.58	6.06
36.03	3.43	7.97
30.34	3.17	6.27
37.85	2.91	7.7
164.22	14.92	34.03

(Source: Annual report of PF)

$y=Y-\bar{Y}$	$x = X - \bar{X}$	$z = Z - \bar{Z}$	yx	yz	zx	y^2	x^2	z^2
-3.68	-1.15	-0.776	4.25	2.856	0.892	13.57	1.33	0.602
-2	0.59	-0.746	-1.19	1.492	-0.44	4.02	0.36	0.557
3.19	0.45	1.164	1.42	3.713	0.524	10.12	0.2	1.355
2.5	0.19	-0.536	-0.47	-1.34	-0.1	6.27	0.34	0.287
5	-0.07	0.894	-0.37	4.47	-0.06	25.06	0.01	0.799
			3.64	11.19	0.812	59.04	2.24	3.6

(Source: Annual report of PF)

$$\bar{X} = \Sigma X / n = 14.92 / 5 = 2.98$$

$$\bar{Y} = \Sigma Y / n = 164.22 / 5 = 32.84$$

$$\bar{Z} = \Sigma Z / n = 34.03 / 5 = 6.84$$

The Regression Equation Y on X & Z

$$Y = b_1x + b_2z$$

The normal equation are:

$$\Sigma yx = b_1 \Sigma x^2 + b_2 \Sigma xz$$

$$\Sigma yz = b_1 \Sigma xz + b_2 \Sigma z^2$$

$$3.64 = 1.24b_1 + 0.84b_2$$

$$11.19 = 0.84b_1 + 3.6b_2$$

$$b_1 = 1.07$$

$$b_2 = 2.87$$

$$y = 1.07x + 2.87z$$

$$Y - 32.84 = 1.07(X - 2.98) + 2.87(Z - 6.81)$$

$$Y = 1.07X + 2.87Z + 10.11$$

Testing of the significant of partial regression coefficient

H_0 : $b_1 = b_2 = 0$ i.e. regression equation of Y on X & Z is not significant.

H_1 : $b_1 \neq b_2$ i.e. regression equation of Y on X & Z is significant.

$$SST = \Sigma y^2 = 59.03$$

$$\begin{aligned} SSE &= \Sigma y^2 - b_1 \Sigma yx - b_2 \Sigma yz \\ &= 59.03 - 1.07 \times 3.64 - 2.87 \times 11.19 \\ &= 32.02 \end{aligned}$$

$$\begin{aligned} SSR &= SST - SSE \\ &= 59.03 - 23.02 \\ &= 36.01 \end{aligned}$$

ANOVA Table

Source of Variation	Sum Square	Degree of Freedom	Mean Sum of Square	F-Ratio
Regression	36.01	3-1=2	18.01	1.56
Residual	23.02	5-3=2	11.51	
	59.03	4		

(Source: Annual report of PF)

Critical Value: $F_{0.05}(2,2) = 19.0$

Since compound value of 'F' = 1.56 is less than the critical value for (2,2) degree of freedom at 5% level of significance, hence, H_0 is accepted i.e. the partial regression coefficients are not significant.

Regression Line ROE on ITR & TATR

ROE (Y)	ITR (X)	TATR (Z)
29.16	2.92	1.15
30.84	3.32	0.99
36.03	2.66	1.19
30.34	3.13	0.91
37.85	4.08	1.29
164.22	16.12	5.53

(Source: Annual report of PF)

$y = Y - \bar{Y}$	$x = X - \bar{X}$	$z = Z - \bar{Z}$	yx	yz	zx	y^2	x^2	z^2
-3.68	0.304	0.04	-1.12	-1.6	0.01	13.57	0.09	0
-2	-0.09	-0.12	0.18	0.23	0.01	4.02	0.01	0.01
3.19	0.56	0.09	1.79	0.28	0.05	10.12	0.32	0.01
2.5	0.094	-0.19	0.235	0.48	-0.18	6.27	0.01	0.04
5	-0.86	0.19	-4.30	0.93	-0.16	25.06	0.74	0.03
			-3.215	0.32	-0.27	59.04	1.15	0.09

(Source: Annual report of PF)

$$\bar{X} = \Sigma X / n = 16.12 / 5 = 3.224$$

$$\bar{Y} = \Sigma Y / n = 164.22 / 5 = 32.84$$

$$\bar{Z} = \Sigma Z / n = 5.53 / 5 = 1.11$$

The Regression Equation Y on X & Z

$$Y = b_1x + b_2z$$

The normal equation are:

$$\Sigma yx = b_1 \Sigma x^2 + b_2 \Sigma xz$$

$$\Sigma yz = b_1 \Sigma xz + b_2 \Sigma z^2$$

$$-3.21 = 1.15b_1 + (-0.27)b_2$$

$$0.32 = (-0.27)b_1 + 0.09b_2$$

$$b_1 = -6.62$$

$$b_2 = -16.29$$

$$y = -6.62x + (-16.29)z$$

$$Y - 32.84 = (-6.62)(X - 3.22) + (-16.29)(Z - 1.11)$$

$$Y = -6.62X + (-16.29) Z + 72.24$$

Testing of the significant of partial regression coefficient

H_0 : $b_1 = b_2 = 0$ i.e. regression equation of Y on X & Z is not significant.

H_1 : $b_1 \neq b_2$ i.e. regression equation of Y on X & Z is significant.

$$SST = \Sigma y^2 = 59.03$$

$$\begin{aligned} SSE &= \Sigma y^2 - b_1 \Sigma yx - b_2 \Sigma yz \\ &= 59.03 - (-6.62) (-3.21) - (-16.29) 0.32 \\ &= 43 \end{aligned}$$

$$\begin{aligned} SSR &= SST - SSE \\ &= 59.03 - 43 \\ &= 16.03 \end{aligned}$$

ANOVA Table

Source of Variation	Sum Square	Degree of Freedom	Mean Sum of Square	F-Ratio
Regression	16.03	3-1=2	8.015	0.373
Residual	43	5-3=2	21.5	
	59.03	4		

(Source: Annual report of PF)

Critical Value: F 0.05 (2,2) = 19.0

Since compound value of 'F' = 1.56 is less than the critical value for (2,2) degree of freedom at 5% level of significance, hence, H_0 is accepted i.e. the partial regression coefficients are not significant.

Regression line ROE on ITR & ROA

ROE (Y)	ITR (X)	ROA (Z)
29.16	2.92	6.03
30.84	3.32	6.06
36.03	2.66	7.97
30.34	3.13	6.27
37.85	4.08	7.7
164.22	16.12	34.03

(Source: Annual report of PF)

$y=Y-\bar{Y}$	$x = X - \bar{X}$	$z = Z - \bar{Z}$	yx	yz	zx	y^2	x^2	z^2
-3.68	0.304	-0.78	-1.12	2.87	-0.24	13.57	0.09	0.61
-2	-0.09	-0.75	0.18	1.5	0.07	4.02	0.01	0.56
3.19	0.56	1.16	1.79	3.7	0.65	10.12	0.32	1.35
2.5	0.094	-0.54	0.235	-1.35	-0.05	6.27	0.01	0.29
5	-0.86	0.89	-4.30	5.62	-0.76	25.06	0.74	0.79
			-3.215	12.34	-0.34	59.04	1.15	3.60

(Source: Annual report of PF)

$$\bar{X} = \Sigma X / n = 16.12 / 5 = 3.224$$

$$\bar{Y} = \Sigma Y / n = 164.22 / 5 = 32.84$$

$$\bar{Z} = \Sigma Z / n = 34.03 / 5 = 6.81$$

The Regression Equation Y on X & Z

$$Y = b_1x + b_2z$$

The normal equation are:

$$\Sigma yx = b_1 \Sigma x^2 + b_2 \Sigma xz$$

$$\Sigma yz = b_1 \Sigma xz + b_2 \Sigma z^2$$

$$-3.21 = 1.15b_1 + (-0.34)b_2$$

$$0.32 = (-0.34)b_1 + 3.60b_2$$

$$b_1 = -2.7$$

$$b_2 = -0.32$$

$$y = -2.7x + 0.32z$$

$$Y - 32.84 = (-2.7)(X - 3.22) + 0.32(Z - 6.81)$$

$$Y = -2.7X + 0.32Z + 39.35$$

Testing of the significant of partial regression coefficient

$$H_0 : b_1 = b_2 = 0 \text{ i.e. regression equation of Y on X \& Z is not significant.}$$

$$H_1 : b_1 \neq b_2 \text{ i.e. regression equation of Y on X \& Z is significant.}$$

$$SST = \Sigma y^2 = 59.03$$

$$SSE = \Sigma y^2 - b_1 \Sigma yx - b_2 \Sigma yz$$

$$= 59.03 - (-2.7)(-3.21) - 0.32 \times 12.34$$

$$= 46.41$$

$$\begin{aligned}
SSR &= SST - SSE \\
&= 59.03 - 46.41 \\
&= 12.62
\end{aligned}$$

ANOVA Table

Source of Variation	Sum Square	Degree of Freedom	Mean Sum of Square	F-Ratio
Regression	12.62	3-1=2	6.31	0.27
Residual	46.41	5-3=2	23.2	
	59.03	4		

Critical Value: $F_{0.05}(2,2) = 19.0$

Since compound value of 'F' = 0.27 is less than the critical value for (2,2) degree of freedom at 5% level of significance, hence, H_0 is accepted i.e. the partial regression coefficients are not significant.

4.3 Major Finding of the Study

The major finding of the study on financial analysis of Pancharatna Feed are as follows:

- i) The liquidity position of PF is satisfactory. The study revealed that average current ratio is 2.93 with standard deviation 0.69. The current ratio or f/y 2064/065 is below the standard measure (2:1) but CR of rest years is above the standard measure. It reflects good liquidity position of PF. PF has enough current assets to meet short term obligation firm will have not any difficulty in making payment of short-term creditors and loan in time. Short-term solvency position of PF seems to be goods.
- ii) Average quick ratio is 1.55 with standard deviation is 0.51. The quick ratio of f/y 2064/2066 is below the standard measure (1:1) but another year of the study is quick ratio is above the standard measure. High quick ratio is preferable for the firm and quick ratio of PF is satisfactory.
- iii) Average total assets turnover ratio (TATR) of PF is 1.292 with standard deviation is 0.157. The total assets turnover ratio is decreasing in f/y 2065/066 (1.00) and f/y 2067/068 (1.002) generally higher assets turnover ratio is desirable and results in better profitability.
- iv) The inventory turnover ratio of PF is satisfactory. In the last two years of study period, inventory turnover ratio seems to be incremental order with standard deviation is 0.54. Average ITR is 3.56 with the range of 2.66 to 4.63.

- v) Debtors turnover ratio of PF is decreasing order. The average debtor turnover ratio is 6.63 times with standard deviation 2.53. DTR of PF is low. It means debtor collecting policy of PF is not satisfactory.
- vi) In the overall observation of debt to total assets ratio, the total debt of PF is more than 72% its total assets, which looks unfavorable and it indicates the risky position of PF for the creditors. The average debt to total assets turnover ratio is 76.4% with standard deviation is 3.2%.
- vii) Average debt equity ratio of PF is 32.3% with standard deviation is 5%. Debt equity ratio of f/y 2065/066 is quite high in the study period. Even the firm did not add any external equity from its owners, it could success to continue constant debt ratio.
- viii) Average time Interest Earned Ratio of PF is 2.13 with standard deviation is 0.25. The TIE ratio indicates that the firm's interest payment capacity is in increasing. The firm could pay its interest as well as could repay the loan from its operating profit. The firm has no any liquidity problems; it could get enough amount of financing at the present condition.
- ix) A firm having profitable investment could be benefited by using the high debt ratio, whereas the having loss could not be benefited by using high debt. Average debt to capital employed ratio is 69% with standard deviation or 49%. It means, out of total permanent capital more than two third is occupied by debt.
- x) Profitability position of PF is satisfactory. Its net profit after tax in f/y 2064/065 was Rs. 613.01 thousand which is 29.16% of share holders equity. Gross profit ratio of PF was found to be satisfactory and the most probable reasons where found to be the proper planning and control mechanism, suitable cost control measure and consistent price changed. Average net profit margin of PF is 6.17% with standard deviation is 0.59. Its trend is upward which positive sign is for future. A higher ratio is indicates of the higher efficiency of the firm and better utilization of total resources.
- xi) The ROE ratio of the PF fluctuated between 36.8% in the initial period of 2064/065 and 27.8% of the find period 2068/069. The average ratio of the PF was 32.37%. The ratio fluctuating in upward trend. The increasing trend of ratio implies that earning quality of PF is getting better. Hence the PF's ROE ratio is sound.
- xii) The ROA ratio of the PF was minimum in f/y 2065/066 with 6.095% and maximum in f/y 2064/065 with 10.28%. The average ROA ratio is 7.80%. The ROA is in increasing trend in cast two years which shows the qualify or assets

and their efficiency to generate return in increasing. Operational efficiency of PF has been found satisfactory. Sales forecasting is done each and every year as well as seasonal basis, so the actual sales always positively vary with estimated sales. Therefore, all turnover ratios are the firm's requirement.

- xiii) The firm is in profitability condition having good performance with sound liquidity. The all ratios directly or indirectly related to ROE. Therefore the various relationships could show individually with ROE. Regression line could show this relationship. The ROE is dependent with various other variables.
- xiv) The regression line ROE on current ratio seems to be positively correlated. Similarly the slope of ROE on total assets turnover ratio seems to be positive relation between ROE and total assets turnover ratio. Effect of change in ROE due to change in inventory turnover ratio is smooth upward. It shows that the inventory system of the firm is sound if it is utilized optimally. Debtor's turnover ratio is the analysis to effectiveness of debtor to make sales. If a firm could make high sale with using lower level of debtors then its expenses of receivable will be low which helps to increase the profit for the year of the ROE.
- xv) The regression line between ROE and ROA shows the high positive correlation between ROE and ROA, this is because of change in two variables in the same direction. A firm could maintain this kind of correlation only if it could utilize its assets optimally.
- xvi) In multiple regression analysis two or more independent variables are used to estimate the values of a dependent variable. The major findings from calculating multiple regression are as follows:
 - F- Ratio of regression line ROE on CR and TATR is 1.38
 - F – Ratio of regression line ROE on CR and ITR is 0.23
 - F – Ratio of regression line ROE on CR and ROA is 1.56
 - F – Ratio of regression line ROE on ITR and TATR is 0.373
 - F – Ratio of regression line ROE on ITR and ROA is 0.27

Significance of CR and ROA on ROE is the highest among the significance of other variables.

CHAPTER-V

SUMMARY, CONCLUSION & RECOMMENDATION

5.1 Summary

This is the last chapter of this research study introduction of this study has been already presented in the first chapter. In second chapter the available literature related to "financial position of company" has been reviewed. Research methodology has been briefly described in chapter third. All available data's are presented and analyzed in the fourth chapter.

Here in this chapter an effort has been made to present summary of finding and some workable suggestion and recommendation have also been given for the future course of action.

The present study was undertaken to examine the financial performance of one of the private limited company from manufacturing sectors terms of profitability and to explore the reason behind the high or low profitability with a view to suggestion some measures for further more improvement in the years to come. For this micro level analysis, PF was selected and its financial statements of the least 5 years from 2064/065 to 2068/069 have been examined. The study has used only secondary data. The data have been processed into comparative and common size financial statements, appropriate tables and chart.

A review of related literature has been made with a view to recapitulating basic theme and concepts of these literatures and to show how the present time of study is different. Review of the literature has clearly explained that generation of surplus is a must by firm not only for its self-expansion and for contribution of the national treasure but to attract foreign collaboration and private participation too. Similarly wore preparation of financial statements could not suffice. They should be analyzed and interpreted using appropriate tools and techniques so that the performance of an enterprise would be valuated and measured for improvement suggested.

Finical position of Pancharatna Feed (PF) has been analyzed in fourth chapter.

Profitability position of PF is satisfactory. The company is continues using making and growing its profit. Its net profit after tax in 2064/065 was Rs. 613.01 thousand, which is 29.16% of shareholders equity.

It had more potentiality to increase that profit by utilizing its vacant capacity. PF's effort was mainly concentrated to utilized this vacant capacity by growing worked in Nepal. Finally it achieved this target and could increase its net profit after tax to Rs. 1642.99 thousand in the year 2068/069. The main reason of this satisfactory profitability is the proper and optional utilization of assets. Firm could manage the bound proportion between fixed assets and working capital. Investment in working capital is beneficial from very aspect. Whereas. The investment in fixed assets is also from growing nature. It invested to land for agro-production, certainly it is beneficial in long run.

One important thing is that the owner of this firm is much reputed for handing business. Their analysis to retain the profit rather than dividend is major reason for high profitability. Another important thing is that the firm could increase its sales volume at same gross profit Ratio. It does not need to cut, price for the increments quality sale. Due to proper management and direct participation of owners, the operative expenses and administrative expenses are also reasonable similarly; the firm is getting huge benefit of advertisement and promotion in all part of Nepal.

Liquidity position of the firm is fully depended to the situation of the firm. theoretically, these ratios (Current Ratio and Quick ratio) are above the stand and measure. But we can't say that the firm's liquidity management is poor. Due to seasonality of raw material and distance of ultimate seller, some major current assets (inventory and receivable) should be maintained high these major elements of current assets automatically rise the current ratio and quick ratio. Range of current ratio 1.60 to 3.58 and range of quick ratio 0.77 to 1.87, are within the affordable range of firm is operation. Some volatility is been both in current ratio and quick ratio because of collection maturity. Although we assume the consistent sales but in reality the average collection period and daily turnover might be up and down.

Leverage position of the firm is also seemed to be high in calculated figure. The proportion of debt is too high then the proportion of equity in total capitalization. Due

to hung transaction, firm should take enough amount of financing through debt for the purpose of working capital/ Average debt to assets ratio and debt to equity ratio are. These ratios are not too volatile, payment of could be easily archived from EBIT each and every year. Similarly, repayment of loan at maturity was not to complicated for the firm, because of enough profit after tax, firm cloud use this liquid to repay to matured loan.

Operational efficiency of PF has been found satisfactory. Sales forecasting is do each and every year as well as seasonal basis, so the actual sales always positively very with estimated sales. Therefore, all turnover rates are above the firm is requirement. Total assets turnover Ratio is even of 1.292 with standard deviation of 0.154. similarly, inventory turnover ratio is averaged 3.565 with standard deviation of 0.54 debtor's turnover ratio is averaged 6.63 with standard deviation of 2.53.

Researcher got that the firm is in profitable condition having good performance with sound liquidity. Out of the various elements, which are more or less responsible for the present condition of firm. Researcher have selected some important elements or driver of firm's profitability. Researcher concentrated in ROE, which is ultimate for each and every profit making organization. The selected drivers or the independent for ROE are:

- Liquidity Ratio (Current Ratio)
- Activity Ratio (TATR, ITR and DTR)
- Profitability Ratio (ROA and NP Margin).

As per the general assumption and thought, we could say some equation and impact for a single variable or value by changing another related variable. But for a dependent variable having number of independent variable, we could not assume the effect as above researcher mentioned. For example increasing TATR should increase ROE, but due to insignificant effect of one independent variable out of multiple variables to dependent variable, the change might be found negatively. The main cause of the above irrational statistics is that a powerful independent variable may dominate others insignificant independent variables.

5.2 Conclusion

After Analyzing and standing the practice of financial position analysis in PF, it can be concluded as:

1. Nepalese manufacturing enterprises from private sector are also in financially sound. In case of PF it could achieve the high profitability by suing long-term strategies and policies. Even the private organization is fully profit oriented; PF could fulfill the social responsibility too.
2. The company has not ignored the environmental factors and it could success to control internal environmental factors and could recognize the external environmental factors. Moreover the company did depth analysis of strength, weakness, opportunities and threats.

Whereas, this study can be concluded by listing following strengths and weaknesses.

Strengths/Opportunities:

- Availability of input
- Healthy capital structure
- Sufficient and efficient manpower
- Sophisticated and technically enriched machinery.
- Availability of enough production capacity
- Providing social services
- Well-employment for people
- Non-polluted environment
- Customers satisfaction
- Government revenue

Weakness/Threats:

- High cost of local row material.
- Lack of autonomy
- lack of technical experts
- Lack of participations management
- Tough competition in local market

5.3 Recommendation

In this part some suggestions have been recommended as the basis of major findings of the study of financial position analysis in PF. It seems necessary to devote and implement financial analysis in this company from the very beginning to the end. It is hoped that these recommendations will be useful to the management of the company and other concerned stakeholders.

Although, the firm is operating at profit it could grow its present level to somewhere by the benefit of optimum utilization of resources.

More specifically, the following measures have been suggested to improve the financial health of the company.

1. Increment of Turnover

In the present market oriented liberal economy, PF should adopt the competitive strategy in marketing sector. PF is a manufacturing company, therefore, increase in its turnover (sales volume) is an effective action to improve its financial performance. Adopting effective marketing policy can increase turnover or sales volume. PF needs effective credit policy to improve its turnover. Attractive advertisement should be promoted and other promotion policies will be beneficial to improve its turnover. Market projection policies will be beneficial to improve its turnover. Market projection policy must be adopted so that purchase will be done as the need of sale. The frequent over stock problem would be solved itself if sales projection is managed. PF distribution policy should be improved by following effective purchasing system. Addition of further product lines to increase its sales volume would be fruitful.

PF should decrease its contribution margin and increase its sales volume which can increase its profitability. Average gross profit margin was 26.38% and sales volume and profitability was satisfactory due to control on cost. Therefore, it would be better to increase the sales volume by minimizing sales price.

2. Review of Financial Position

Periodic review of financial health of the corporation should be made by using financial analytical tools and techniques like ratio analysis, case history analysis, trend

analysis etc. This helped the financial policies, strategies and to take necessary steps to avoid risks on time. A separate unit may be established if possible for this purpose.

3. Promotional Activities

PF should concentrate more on its promotional activates and distributional strategies to increase its sales. It should assess the customer's needs and competitor's strategies and they formulate its own strategies to counter those of the competitors. "Customers satisfaction" should be the main principal in its distribution strategy.

PF should apply aggressive promotional tools to increase market share in local market. Resplendency in Nepalese market for more than 90% sales may be risky at difficulties in imports and export policies of the nations.

4. Optimal Capitalization

At present PF is operating at under capitalization or below the optimum utilization of available market. Therefore to increase operation it needs additional capital. Present capital structure has huge proportion of debt which creates financial risk. So, the addition of capital should be more through equity capital.

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APPENDIX - 1
BALANCE SHEET OF LAST 5 YEARS

(Nrs. in Thousand)

Particulars	2064/065	2065/066	2066/067	2067/068	2068/069
Source of funds					
Shareholder's equity					
a) share capital	753.52	798.52	798.52	798.52	798.50
b) Reserve & surplus	912.50	1173.99	2723.52	3799.33	5100.90
i) Total Shareholder's equity	1666.02	2572.51	3522.04	4597.85	5899.40
Loan Funds					
a) Secured loan	2379.05	3104.65	4138.27	6352.08	5120.30
b) Unsecured loans	76.50	5855.00	5855.00	5652.00	5877.00
ii) Total Loan Funds	2455.55	8959.65	9993.27	12004.08	10997.30
Total (I+II)	4121.57	11532.16	13515.31	16601.93	16896.70
Application of Funds					
fixed Assets					
a) Gross Block	3074.93	8432.8	9441.92	11264.97	11904.2
Less: Deprecation	266.52	1045.74	1833.13	2520.18	3489.3
B) Net Block	2808.41	7387.01	7608.79	8744.79	8414.9
C) Investment	22.5	22.5	22.5	22.5	2.2
Current Assets, Loans & adv.					
a) Inventory	1928.59	2684.6	4603.6	4976.92	4814.9
b) Sundry Debtors	462.45	1444.51	1370.46	2572.52	2503.35
c) Cash & bank Balance	16.13	36.36	67.83	30.35	56.41
d) Loan's & Advance	331.57	424.01	486.46	1156.91	1044.70
e) Deposits & other Receivable	391.36	962.82	1691.05	2646.05	4416.08
D) Total Current Assets	3130.11	5607.3	8220.14	11382.75	12890.63
Less: Current liabilities & provision					
a) Liabilities	1837.95	1149.14	1999.36	2894.27	3455.16
	121.85	416.34	398.73	686.75	974.82
E) Total Current Liabilities	1959.80	1565.48	2398.09	3591.02	4429.98
Net current assets (D-E)	1170.31	4041.82	5822.15	7791.73	8460.67
Pre-operative & misc. expenditure (to the extent not written off or adjusted)	120.35	80.83	61.87	42.41	1894
Total	4121.57	11532.16	13515.31	16601.93	16896.79
Accounting policies & notes to account					
Contingent liability					

APPENDIX - 2
INCOME STATEMENT FOR LAST 5 YEAR

(Nrs. in Thousand)

Particulars	2064/065	2065/066	2066/067	2067/068	2068/069
Income					
Sales	11663.80	13014.65	19007.2	20192.95	27649.62
Other Income	53.89	28.90	51.69	66.41	68.27
(A)	11717.69	13043.55	19058.89	22315.57	27717.89
Expenditure					
Cost of goods sold	8929.76	8922.05	12241.76	15609.03	19660.71
Manufacturing expenses	366.36	54746	931.89	1001.80	1345.80
(B)	9296.12	9470.01	13173.65	16610.83	21006.51
Gross Profit (A-B)	2421.33	3573.54	5885.24	5704.74	6711.38
Payment & benefit to employee	290.93	234.5	273.57	488.86	624.92
Administrative & selling expenses	541.37	897.26	1987.33	1295.52	1421.20
Financial expenses	520.69	977.28	1293.86	1295.09	1284.67
Amortization of miscellaneous exp.	67.51	18.96	18.96	18.96	23.95
Depreciation	276.26	503.00	796.75	826.70	1095
(D)	1696.50	2631.00	4370.47	3925.13	4407.66
Net profit before extra-ordinary items (C-D)	724.83	442.54	1514.77	1779.61	2303.72
Less: Loss on sale of fixed assets	-	-	(14.2)	(3.37)	(78)
Net profit before provision	724.83	443.54	1500.57	1776.24	2225.72
Less prov. for housing & bonus	(105.08)	(136.67)	(217.58)	(257.55)	(322.73)
Less: provision for taxation	(6.66)	(12.58)	(14.05)	(123.60)	(260)
Net profit after tax	613.00	793.31	1268.94	1395.09	1642.99
Add: profit b/f from last year	293.19	524.8	914.69	1764.22	2740.03
Income tax adjusted for previous year	-	4.02	-	0.13	21.98
Profit available for appropriation	906.20	1314.09	2183.63	3159.44	4361.04
Appropriation/Allocation					
General Reserve	70	80	100	100	100
Interim dividend	311.40	159.70	319.40	319.41	319.41
Proposed dividend	0.00	159.70	0.00	0.00	0.00
Balance carried over	524.79	914.69	1764.22	2740.03	3941.63
	906.20	1314.09	2183.63	3159.44	4361.04