

CHAPTER I

INTRODUCTION

1.1 General Background

The agriculture sector plays crucial role in the Nepalese economy not only because provides food security to the country but also employment opportunities to the total rural agricultural communities, and contributes about 35 percent to the Gross Domestic Product (GoN, 2013). Therefore, the agricultural development of the country today is as important as it was in the past.

The agricultural development of the country cannot, however, be achieved solely by the growth of agricultural production in the fields, unless agro-based industries are developed side-by-side as agro-based industries add value to agricultural production, both food and non-food through their processing and producing as processed goods (Dhungana, 2003). The establishment of agro-based industries thus not only helps to enhance industrial output for the consumption and export, but also provides employment opportunities to thousands of people in factories.

Therefore, agricultural countries like Nepal have to emphasize on both the development of agriculture and agro-based industries for its economic development. The setting up of agro-based industries in different regions of the

country is justified by the availability of raw materials and labour, which are not yet fully utilized in productive activities

Consequently, a number of agro-based industries have been established in the short history of modern industrialisation in Nepal. Among which, sugar industry is one of the largest agro-based industries, mainly concentrated in Tarai districts of the country. Sugar industry, therefore, occupies a pride of place in the Nepalese economy not only because it substantially contributes to the country's GDP, national income and foreign exchange earnings but also provides direct and indirect employment opportunities for thousands of people in the fields and factories. This study is thus concerned with the sugar industry in Nepal.

1.2 Sugar Industry in Nepal

The following sections provide a glimpse of the status and the major aspects of the sugar industry in Nepal.

1.2.1 Status of Sugar Industry in Nepal

Sugar has been produced in Nepal since time immemorial. Earlier, *Sakkhar* (unrefined yellow black sugar) was locally produced wherever sugarcanes were grown. After the establishment of modern sugar mills, however, crystallized sugar has been produced and also imported from India for consumption in Nepal. At present, it is estimated that about 140,000 metric tons of sugar are consumed every year in the country, of which about 70 percent are contributed by the Nepalese sugar mills (Annual Report of SRSM, 2007-08).

This fact shows that there is the need for sugar mills that can substitute the import of sugar. In the Fourth Five Year Plan (1970-75), the establishment of import substituting industries was first emphasized (NPC, 1970). Sugar industry as quoted in the basic needs program of the Eighth Five Year Plan (1990-95) as one of the main food industries and upliftment of the same deserves a special priority. Thus, sugarcane cultivation was lately given high importance as sugarcanes being the key raw materials for the growing sugar industry. The large-scale production of sugarcane was started only in the recent decades with the establishment of the sugar mills in Terai districts.

In the history of Nepalese sugar industry, Morang Sugar Mill was the first organized sugar mill which was established in 1946 at Rani, Morang district with the joint venture of Indian traders in the private sector (Rajbhandari, 1969). After the formation of Udyog Parishad and enactment of company law in the country, it had been possible to establish an industrial unit in the private sector. As a result Morang Sugar Mill was established with initial sugarcane crushing capacity of 200 metric tons per day which was increased to 400 metric tons later. However, that mill is closed now.

In 1960, Mahendra Sugar and General Industries was established at Siddharthnagar in the private sector with 250 metric tons crushing capacity (Rajak, 2006). Unfortunately, this mill also is now closed due to heavy losses incurred. Later on in 1964, to become self-sufficient in sugar production, Birgunj Sugar Factory Ltd. was established by the Government of Nepal in collaboration with the erstwhile Soviet Union with initial crushing capacity of 1,000 metric tons

which later increased to 1,500 metric tons (Rajak, 2006). This was the first sugar mill established in the public sector. Later on, this mill was liquidated due to heavy losses. In 1984, Indu Shankar Chini Udyog was established in the private sector with initial crushing capacity of 1,000 metric tons which was increased to 2250 metric tons later on (Rajak, 2006).

In 1987, Lumbini Sugar Factory with 1,000 metric tons crushing capacity was established at Nawal Parasi by the Government of Nepal in collaboration with the People's Republic of China (Rajak, 2006). This factory was also established in the public sector. Later on, all sugar mills were established in the private sector only. In 1994, Shriram Sugar Mill Ltd. was established at Mohammadpur, Rautahat district with 2,500 metric tons crushing capacity per day (Rajak, 2006). Similarly, Mahalaxmi Sugar Mills Ltd. was established in 1994 at Krishnanagar with 2,500 metric tons crushing capacity (Rajak, 2006).

In 1995, Everest Sugar and Chemical Industries was established at Ramnagar, Mahotari district with 3,000 metric tons crushing capacity (Rajak, 2006). In 1998, Eastern Sugar Mill Ltd was established at Yamahi Belha, Sunsari district with 2,500 metric tons crushing capacity (Rajak, 2006). Basuling Sugar and General Industries was also established in 1998. During the period of development of sugar industries, Bagmati Khadsari Chini Udyog was also established in 1998 with the purpose of producing khadsari chini but from 2002 that udyog started producing sugar. Mam Kaur Sugar and Chemical Industries was established at Bara district in 2005 (Rajak, 2006).

In this way, altogether twelve sugar mills came into existence after the establishment of Morang Sugar Mills in Nepal (Rajak, 2006). Of these, ten sugar mills were established in the private sector and the rest two in the public sector. During the period of the study (2000-01 and 2007-08), only eight sugar mills were running properly, whereas the remaining four sugar mills have been closed due to some unknown reasons. There are also seven Khandsari mills and some molasses factories in operation in the country (Rajak, 2006).

1.2.2 Cultivation of Sugarcane

Exactly when sugarcane cultivation began in Nepal is not yet known. However, it is assumed that it used to be cultivated in the country since ancient times, as it is believed that sugarcane was used for different religious purposes since time immemorial. In earlier times, local sugarcane varieties like '*Dhode*' and *Gyabara* were used to be cultivated in the highlands of the country. Besides, *Sakkhar* was also used to produce by traditional crushing method mainly for household consumption and partly for sale. It was said that *Sakkhar* produced in Nepal was of much better quality than that of imported from India (Rajak, 2006). After the establishment of Morang Sugar Mills in 1946, modern methods were used for the cultivation of sugarcane of *gramineas* family in the country, (Koirala, 1984), as a major cash crop.

With the establishment of increasing number of sugar mills in the country over the years, the Nepalese farmers realized the significance of commercial farming of sugarcane. Sugarcane cultivation is becoming more and more

attractive to farmers. Its importance lies in the fact that out of 75 districts, 60 districts produce sugarcane. Major districts producing sugarcane are located mostly around sugar factories. The intensive commercial farming of sugarcane is confined in ten major districts of Nepal, namely Morang, Sunsari, Sarlahi, Siraha, Bara, Parsa, Rautahat, Rupandehi, Nawalparasi and Kapilbastu (Rajak, 2006). These districts are the main areas of sugarcane cultivation. Sugarcane cultivation plays a significant role in the national economy. It is estimated that about 60 percent is contributed by domestic production and the rest is imported from abroad, (Sainju, 1990:29). This indicates the need of increase in sugarcane cultivation in Nepal due to yearly increase in the consumption of sugar in the country. In this context, sugarcane crop being the main source of raw materials of the sugar industry and thus plays a significant role in the national industrialization and economy.

Sarlahi is one of the leading districts, where 9,566 hectares of land are occupied by sugar cane cultivation and production was about 381,470 metric tons in 2009-10 . Sarlahi district is ranked first in sugarcane production which alone covers nearly 20 percent of the total production (Central Bureau of Statistics (CBS), 2011). In 2000-01, the area for sugar cane cultivation was 46,140 hectares, whereas in 2009-10 it was increased to 58,310 hectares (CBS, 2011).

The production of sugarcane has also increased with the increase in the area for cultivation during 2000-2001 and 2009-10. In 2000-2001, the total production of sugarcane of Nepal was 1,621,510 metric tons which increased to

2,495,098 metric tons in 2009-10 (CBS, 2011). Thus, the production of sugarcane is annually increasing.

1.2.3 Production of Sugar

Since the establishment of the first sugar mill, the number of sugar mills in the country was substantially grown. So was the total domestic production of sugar. The total production of sugar in the country was 63,374 metric tons in 2000-01, which increased to 108,605 metric tons in 2009-10 (CBS, 2011). However, Nepal has always remained dependent on the imports of sugar for meeting its total demands, in spite of the growth in the number of sugar mills and their sugar production.

1.2.4 Capacity Utilization

Capacity utilization is a broad concept which includes physical, economic and technology capacity utilization. In case of the Nepalese sugar industry, a glance of physical capacity shows that it is gradually decreasing. In 2000-01, the capacity utilization was 61 percent, whereas in 2009-10, it was recorded to be 40 percent (CBS, 2011). It is the clear that the sugar industry of Nepal suffers from under capacity utilization and is in declining trend.

1.2.5 Import of Sugar

Sugar is being imported in Nepal for a long time. A number of sugar mills have been established since 1946; however, their production has not been

sufficient to fulfill the ever increasing domestic demand for sugar. As such, import of sugar particularly from neighboring countries has been a regular phenomenon.

It has been clearly shown in “A glimpse of Nepal's foreign trade (2007-08)” that sugar worth 19 crore rupees was imported in fiscal year 2002-03 and approximately sugar worth 23 crore rupees was imported in 2005-06. This shows us that the import of sugar is in an increasing trend.

The Rajdhani, a Nepali vernacular daily, dated 19th August 2013 reported that Nepal Rastra Bank (Nepal's Central Bank) issued a notice stating that sugar worth Rs. 99.4 million was imported from India in fiscal year 2011-12, whereas in 2012-13 sugar worth Rs.1.06 billion was imported which was 968 percent more than the last fiscal year. Such an enormous amount of increase in the import of sugar has raised question regarding the production capacity of the sugar industry of Nepal.

1.3 Focus of the Study

From the foregone discussion, it is obvious that on the one hand with the increase in the number of sugar mills sugarcane cultivation and sugar production have substantially increased; on the other, these sugar mills' production of sugar seemed to be not sufficient in meeting the national demand.

In such a situation, one wonders as to why and how the Nepalese sugar industry has not been able to produce to meet the national demand for sugar despite raw materials and labor are available in the country.

This study thus primarily focuses on the detailed analysis and appraisal of performance of the Nepalese sugar industry so as to clearly understand and describe why such inconsistent situations have occurred. To understand the root cause of the problem, it is essential that systematic appraisal of the performance of sugar industry has to be ascertained and the reasons thereof be fully described.

Today, performance appraisal has been assumed to be an important process by which the real worth and prospect of going concerns like sugar mills could be ascertained. In many countries including Nepal, a lot of studies have been conducted on different aspects of sugar industry, but not much on its performance appraisal. Therefore, this study has been undertaken to appraise the performance of sugar mills in Nepal to find out their real conditions and identify and describe the reasons for such conditions.

1.4 Statement of the Problem

The Nepalese sugar industry seems, however, going through vicissitudes of fortunes. Among the total 12 sugar mills established so far, 4 largest sugar mills are already closed and those which are still running have shown dismal performance particularly in terms of capacity utilization, production and profitability (Annual Reports of Respective sugar mills under study, 2000-01 to 2007-08).

Despite the fact that the area of sugarcane cultivation and sugarcane production have substantially increased and the demand for sugar in the country

has tremendously grown over the years, 4 large sugar mills have been closed and the running ones also seem to be trailing. To meet the increasing demand for sugar, therefore, the volume and value of sugar imports have been remarkably increasing.

The sugar mills, which occupy an important place as being one of the oldest and the largest industrial enterprises in Nepal, therefore, seem to be in difficulty. Besides, they also appear to be under financial stress. In such a situation, it is but natural to raise a question as to why Nepalese sugar mills are failing to utilize its full production capacity and meet the rising demand and import for sugar when there is substantial and sufficient amount of raw materials and labour are available in the country, In order to find out the answer to this question, it is essential to attempt to critically analyse the operational and financial affairs of the sugar mills.

There are a number of studies which have been conducted on performance appraisal of various sugar industries in different countries. In relation to the financial performance as working capital, liquidity position, profitability, V.N. Gupta (1992) found the all 20 selected sugar mills in India had a declining trend. Decreasing profit margin ratio and dissatisfactory current financial position were found in the study made by Samaria (1988). Bindrawan (2001) studied 10 selected sugar mills of Uttar Pradesh of India and found that they suffered from lower liquidity position, unable to pay future bills, slow collection, low fixed turnover and high levered debt-equity ratio.

With respect to capacity utilization, the study of Sayed Hossini (1994), found that the total average capacity utilization of the sugar industries of India increased from 64.6 percent in 1979-80 to 112.3 percent in 1990-91.

Various studies have also been conducted regarding total factor productivity and partial productivity. Baier, *et al* (2006) studied that a new set of data covering 145 countries over a long time span provide evidence that little of the average growth of output per worker across the world was directly due to the growth of total factor productivity of 14 percent for all the countries. Connolly and Fox (2006) examined the relationship between high-tech capital use and productivity and found positive relation between these two. Hartmut Egger and Peter Egger (2006) studied the role of international outsourcing on the productivity of low-skilled workers in EU manufacturing, which in the short-run exhibited a negative marginal effect on real value added per low unskilled worker, the long-run parameter estimates revealed a positive impacts.

In the case of Nepal, very few studies have been carried out regarding the performance appraisal of manufacturing enterprises. Pant (2005), Shrestha (2004). Rijal (2003) and Pradhan (1984) have conducted studies, which analyze the capacity utilization, productivity of the Nepalese manufacturing enterprises. These studies found low capacity utilization and negative growth of labour. It is thus obvious that most of studies observed poor performance of manufacturing enterprises in terms of their financial performance, capacity utilization, and productivity.

Similarly, there is a very few studies (Shah, R.C.P, 2002; Bhagat, S.K., 2008) have been conducted in the past regarding the performance appraisal of Nepalese sugar industry, which mainly focus on the financial performance and marketing performance respectively. Therefore, this study has been undertaken to examine both the operational and financial performance of the Nepalese sugar industry.

The main thrust of the study has been thus to address the following issues:

-) What are the production and productivity of the Nepalese sugar mills?
-) What are the capacity installed and capacity utilization of Nepalese sugar mills?
-) How far Nepalese sugar mills have been able to generate value addition?
-) What are the trend of the productivity in regarding the capital productivity, labour productivity and total productivity?
-) What relationship does exist between liquidity, financial leverage, activity and profitability?
-) What relationship does profitability have with liquidity, financial leverage and activity?
-) How do the stakeholders of the Nepalese sugar industry perceive the major aspects of the performance of Nepalese sugar industry?

1.5. Objectives of the Study

The main objective of the study is to examine the operational and financial performance of the Nepalese sugar mills under study in terms of their output and productivity, capacity utilization, value added generation, and different financial aspects.

The specific objectives of the study are as follows:

-) To assess the contribution share of the respective sugar mills in total domestic production of sugar.
-) To examine the level of capacity utilization in the selected sugar mills.
-) To measure and assess the value addition and the productivity of the sugar mills under study.
-) To evaluate the financial performance of the respective sugar mills in terms of their liquidity, leverage, activity and profitability.

1.6 Significance of the Study

Sugar industry plays a vital role in the Nepalese economy. Sugar industry, where large investments are made, is expected not only to sustain its survival and growth, but also to contribute to the country's development endeavours. Therefore, it is essential that the performance of the industry needs to be assessed at times so that its conditions are known and if it is facing problems of

some kind can be solved in time. This study thus takes a step towards to this direction.

Sugar industry is one of the largest industries in which thousands of people earn their livelihoods. Society has deep-rooted attachment for them. Any crisis in these mills will therefore have serious social repercussions. Keeping this view in mind, this study has been undertaken so that some measures for improving their performance can be provided. To take public policy decisions about the sugar industry in the future, this study will provide a useful source of information to the government on operational and financial matters of the industry.

The study would also be useful for academics, students and research scholars as a reference study material, as the study has attempted not only to appraise only one aspect such as the financial aspect of the industry but also its operational aspect. Besides, the study has used a mix of techniques to appraise the operational and financial performance of the industry, which would also contribute to the literature of firm's performance measurement.

1.7 Organisation of the Study

This study has been organised into seven chapters. Chapter one being the introductory covers the general background of the study, sugar industry in Nepal, statement of the problem, objectives of the study and significance of the study. Chapter two is devoted to the review of some important literature in the field of study of operational and financial aspects of an enterprise. In addition,

some empirical studies relating to performance appraisal also are reviewed. Chapter three includes the research methodology adopted for the present study. Chapter four covers the appraisal of operational performance of the sugar industry in terms of demand for and supply of sugar, contribution of sugar mills in national production of sugar, capacity utilization, value added and productivity. Chapter five presents the evaluation of financial performance in terms liquidity, leverage, activity and measurement of profitability of the sugar industry. Chapter six analyzes the survey results of stakeholders of the sugar industry for identifying and describing the reasons for the present performance of the industry. Chapter seven is the last chapter of this study. It summarizes and concludes the study.

CHAPTER II

REVIEW OF LITERATURE

This chapter presents the review of the relevant literature available in the field of study. Therefore, it attempts to review some previous studies related to performance appraisal of an enterprise. The following sections deal with the major concepts related to performance appraisal, capacity utilization, value added and productivity.

2.1 Concept of Performance Appraisal

‘Performance appraisal’ is an act of judging whether something has been done as it is expected to be done. In the context, however, of a firm management, performance appraisal means ‘to find out whether or not an organization has fulfilled its objectives (Sarswat, 1990). This implies that conceptually performance appraisal is an exercise which has three basic elements, *viz.* expected performance, actual performance and a mechanism through which the comparative analysis (expected vs. actual) facilitates action by providing feedback.

Since each enterprise has its own objective to be achieved, performance appraisal has to be attempted at an individual enterprise level, rather than all enterprises put together. Although they are grouped under one name – ‘enterprises’, each one of them belongs to a specific category like development

corporation, manufacturing companies, service organizations, trading units and so on, and each of these categories of organizations function in a different business environment (Sarswat, 1990).

It is in this complexity that an attempt is to be made to spell out clearly the mission of an enterprise, its long-term and short-term objectives as well as its economic and non-economic objectives. A meaningful performance appraisal system can be developed only when such an exercise is completed (Sarswat, 1990).

The term 'appraisal' refers to a critical review of performance. It includes the act to examine, to measure, to interpret critically and to draw conclusion. In due course, it involves the comparison of actual performance with the objectives, goals and targets set, identifies causes of significant variation and devices corrective action.

However, the term appraisal can be defined as a systematic procedure of drawing conclusions. It is naturally turned to assessing whether the enterprises operations of the concern would be safe, appropriate and profitable. Every enterprise is assessed on its own merits and achievements. When the terms performance and appraisal are put together we come to the phrase performance appraisal.

The meaning of the word 'performance' as stated above is a literary meaning. In the context of the present study, it covers some other aspects. Erich L. Kohler (1979) defines it as a general term applied to part or all of the conduct

of activities of an organisation over a period of time, often with reference to past or projected costs, efficiency, management responsibility or accountability or the like.

Robert Albanese (1978), the word “performance” is used to define the efforts extended to achieve the targets efficiently and effectively. The achievement of targets involves the integrated use of human, financial and natural resources.

The word ‘appraisal’ includes the acts such as to examine measure, interpret, weigh critically and draw conclusions. Hence, the term ‘appraisal’ can be defined as a systemic procedure of drawing conclusions. The word ‘appraisal’ correlated with ‘performance’ is read as ‘performance appraisal’. Now we come to the meaning of performance appraisal.

“Performance appraisal’ is a critical assessment of various activities in different areas of operation of an enterprise. Performance appraisal is a process of evaluating the efficiency and effectiveness of an enterprise in performing various operations. Erich A. Helfert (2007), the measurement of business performance is complex and difficult, since it must deal with the effectiveness with which capital is employed, the efficiency and profitability of operations and the value and safety of various claims against the business.

2.2. Measurement of Performance Appraisal

The performance appraisal can be done through a careful and critical analysis of the operational and financial performance of an enterprise. A financial statement is an organised collection of data prepared according to logical and consistent accounting procedures. The term 'financial statement' refers to two statements- the balance sheet or statement of financial position reflecting the assets, liabilities and capital on a particular date and the income statement or profit and loss account showing the results achieved during a certain period. As a part of financial statement the balance-sheet is a mirror, which reflects the financial position of the business. It is known as 'statement of assets, liability and proprietorship' Howard and Upton (1953), 'statement of condition' Paul G. Hasting (1963), 'statement of worth' Guthmann (1964). Thus, the balance sheet is a statement summarising the financial position of a business on a particular date.

The profit and loss account is also called 'Income statement', 'Statement of earned samples', 'Statement of Earnings' and so on. It shows the results of trading and non-trading operations during a certain period of time, usually a year. It presents the summary of the income obtained and the cost incurred by the firm during one year period. It tells the story of operations over the fiscal period in the past Foster (1942). It is a systematic array of the data of revenues, revenue deduction (expenses, losses, and taxes), net income and distribution or assignment of net income to creditors and investors for a particular period William A. Paton (1957). Thus, the financial statements provide a summarised

view of the operations of a firm. Therefore, much can be learnt about a firm from a careful examination and critical analysis of its financial statements.

Financial statements are the means to present the operating results and financial state of a firm. Hence, on the basis of the analysis and interpretation of financial statements, an analyst can examine a firm's performance. According to Metcalf and Titard (1976), analysing financial statements is a process of evaluating relationship between the component parts of financial statements to obtain better understanding of a firm's position and performance.

In the words of Kennedy and McMullen (2009) the analysis and interpretation of the financial statements result in the presentation of information that will aid in decision making by business manager, investors and creditors as well as other groups who are interested in the financial statement and operating results of a business." Financial statements present the overall performance of a company.

The first task of the performance appraisal through financial statements analysis is to select the information relevant to the decision under consideration from the total information contained in the financial statements. The second step is to arrange the information in such a way as to highlight significant relationship. The third step involves the interpretation and drawing of inferences and conclusions. Erich A. Helfert (2007) holds, "The person analysing business performance has clearly in mind which tests should be applied and for what specific reasons." One must define the view points to be taken, the objectives of

analysis and possible standards of comparison. The process of performance appraisal through financial statements may be summarised as follows:

Data for the performance appraisal emanate primarily from financial statements. The initial step in the process of performance appraisal is the reorganisation and arrangement of the entire financial data as embodied in financial statements in an orderly sequence in a condensed form so that it may be studied effectively. Just as it is difficult even to count the number of people in a disorganised crowd, so it is difficult to make economic sense out of jumbles of unrelated financial facts. Once the crowd is arranged in numbered rows and files, counting is simplified (Eugene M. Lerner, 1963). Similarly, the data embodied in financial statements are rearranged in order to facilitate the appraisal of performance.

The next step is the establishment of significant relationship between the individual components of profit and loss account and the balance sheet. This is done through the application of the tools and techniques of performance appraisal like ratio analysis trend analysis, and so on.

The comparative data, obtained by applying the tools and techniques of performance appraisal are evaluated, interpreted and reported in an understandable form. It also requires establishing the standards by which the comparative data can be compared, evaluated and interpreted. Standards may be based either as some authoritative literature like E.T. standards on the subject or on personal experience regarding the situation in which a business enterprise

operates. The average ratio of the company under consideration or of the industry of that particular group may also be used for the purpose.

Finally, the specific conclusions arrived at as a result of the appraisal of performance are presented in the form of a report which highlights the performance of the industry/unit concerned.

2.3 Significance of Performance Appraisal

Significance of performance appraisal from the view points of different related parties are as following

Management: Managers are responsible for efficiency, current and long term profit from operations and effective employment of capital and resources in the process Erich A. Helfert (2007). Performance appraisal may help the management in appraising the effectiveness of its own plans and policies. In the words of Gerstenberg (1960), on the basis of performance appraisal, management can measure the effectiveness of its own policies and decisions determine the advisability of adopting new policies and procedures and document to owners the result of their managerial effort.

Investors: Investors or the owners of the business in turn are interested in the current and long term profitability of their equity investment, reflected in giving earnings and dividends and in the rise of the economic value of their “stake” relative to the risk encountered Erich Helfert (2007). Performance appraisal gives the required information to the investors.

Creditors: Creditors are concerned about the company's ability to meet its financial obligations. Providers of short term loan are interested in the company's short term liquidity, the ability to repay the debt as and when it will become due providers of long-term loans are not only interested in company's ability to repay but also in the ability of the company to realise profit on the capital employed. On the whole, they are interested in ascertaining whether the company can employ the loan granted to it in such an efficient and effective way that it would be possible for the company to meet current interest obligations and repay the loan when it falls due. Creditors generally appraise the performance of a company before lending the money.

Employees: Employees are interested in the operating results and the financial position of a company. There should be sufficient profit margin and adequate cash flow to meet the wages obligation within due course. The past operating performance of the company as well its current financial position is generally studied to measure the ability of the company to meet wage commitments.

Government: Reliability of tax receipts is the main interest of the government. Government regulates economic activities in various spheres and as such is closely interested in the health of an industry also. To levy various taxes, estimate future revenues, granting aids, sanctioning financial assistance to a business enterprise or industry and to frame pricing policy, government also needs to appraise the performance of an individual business enterprise or the industry as a whole.

Society and others: A number of attempts and research experiments are being conducted to measure the contribution of an enterprise to the society. The results of these attempts suggest that business undertakings have a social responsibility and that their performance in this context should be evaluated. The employers, creditors, investors are part of society and as such their interest in the performance of a business becomes the interest of the society. But society at large also expects to know about the social performance such as environmental obligations, employments avenues and social welfare, etc. The other agencies which are also interested in analysing the performance of an enterprise may be the media, trade unions, labour bureaus, economic and commercial research institutions and stock exchanges.

2.4 Areas of Performance Appraisal

The appraisal of performance is closely interrelated with the measurement of progress. It is concerned with the efficiency and effectiveness of an enterprise which is possible through the critical assessment of various activities and operations performed by a business concern. The areas of operations may be termed as the area of performance appraisal.

The important areas of performance appraisal have been grouped under two heads for the study. They are operational performance appraisal and financial performance appraisal. In operational performance appraisal, the study highlights on capacity utilization, value added and productivity areas which have

been observed to measure and analyse the operational performance of the selected sugar mills of Nepal during the period.

2.4.1 Capacity Utilization

Operational performance of an enterprise can be measured by capacity utilization. Capacity utilization is a vital aspect of an enterprise. The progress of an economy is indicated not by how much it produces but how efficiently it produces. It is the outcome of optimum utilization of installed capacity. It has been observed that almost in all developing countries low capacity utilization is a common phenomenon. Greater the utilization of the capacity, higher will be the output. Besides, the cost of output can be minimised only through the spread of fixed cost by the utilization of capacity to the fullest extent. It can be used as a tool for measuring the industrial efficiency. The major aspect of the performance of the industry relates to the capacity utilization Industrial times (1976). The level of industrial capacity must be utilised to its maximum potential. In this regard, it is seemed that not much attempt has been paid. Thus, in present study an attempt has been made to analyse the capacity utilization of the sugar industries of Nepal to measure their operational performance.

In general business sense, capacity is most frequently viewed as the amount of output which a system is capable of achieving at a particular time Chase and Acqilauo (1981). It is a rate of output that translates into a quantity of output in a given time and is the highest quantity of output possible during the time Hendrick and Moore (1985). The capacity may be measured in different

terms such as units of output, labour hours or machine hours. A firm would like to make best use of its capacity for maximum profitability. The capacity levels should be clearly defined for the firm as well as for departments to see to what extent departments have been able to achieve the available capacity Pandey (1912).

The concept of capacity utilisation has been variously interpreted as the purpose and use to which the measures have been put. There are different levels of capacity. Some of them are briefly described here:

- i. Theoretical capacity:** This is the maximum production a plant can make by running full without any interruption. Practically speaking this capacity is unattainable for all. However, it does serve as a measuring point for establishing other capacities that are determined by internal constraints within the factory itself Lynch and Williamson (1989).
- ii. Practical capacity:** Unlike theoretical capacity, it depends on the ordinary and expected interruption, delays, machine and tool break downs, variability in worker productivity, holidays, inventory shut downs, etc. The limits of practical capacity are determined by internal constraints within the factory itself Lynch and Williamson (1989).
- iii. Normal capacity:** This is the most commonly used and elusive concept. Normal capacity is generally conceived in terms of the market prospects for the firm over a period of years sufficiently long to iron out the high and low years in a complete cycle and short enough to be reasonably foreseeable.

The limits of normal capacity are established by external constraints Lynch and Williamson (1989). It takes production interruption and lack of demand over a period into consideration in order to level out cyclical and seasonal fluctuations (Pandey 2012).

Generally, an increase in production as compared to the preceding year increases the rate of capacity utilisation if the installed capacity remains constant over the years. But an increase in production as compared to the preceding year may decrease the rate of capacity utilisation if the major addition were made to capacity in the immediate preceding year. According to N. Shah, if the rate of expansion of capacity is moderate but the rate of increase in output is poor, it will pull down the degree of capacity utilisation (Pradhan,1984).

Capacity utilisation has an important implication for a developing country like Nepal. Growth rate of economy as a whole can be revised by improving the level of capacity utilisation (Pradhan, 1984). The success of any business enterprise can be measured by capacity utilisation. Most of the Nepalese enterprises are suffering from heavy losses due to less utilisation of capacity. Therefore, careful and continuous attention should be given to this aspect by the industries and the government of the country so that the enterprises can run smoothly, efficiently, economically and profitably.

2.4.2 Value Added

Some years ago, for the measurement of social obligations of business there were no effective methods or techniques for judging its performance from the social significance point of view. In that period one could judge the business

prosperity and development on the basis of internal measures i. e. investment and profitability. Traditionally, financial analysts have evaluated the success of an organisation in terms of profit realised during an accounting period. In recent years ago, a considerable interest has been shown in the use of value added as an alternative or additional approach to measure the operational efficiency of a business.

a. Concept

The concept of value added is not a new one, but interest in it has increased since the publication of "The corporate report "by the Accountant Standard Steering Committee, London in 1975 and "The future of company report", a consultative document of the British Government published by H.M.S.O., London in July, 1977, Gupta, (1996).

The term value added means excess of turn over plus income from services over the cost of brought-in goods and services. It, therefore, equals the addition in the utility of raw materials by a business. This utility is added through the production process of the concern. It may be said that the manufacturing operations are simply a conversion process that yields an additional utility of the material used. Value added may be known as the wealth created by the company from its operations. Value added has been defined by corporate report (1975) as the wealth, the reporting activity created by its own and employee's efforts. In accounting terms, Brown and Howard (1982) have pointed out that value added in sales value lessens the cost of brought-in goods and services

used in producing those sales. John Sizer (1979) says that value added is the wealth the company has been able to create by its own and its employees' efforts during a period. According to Richard Lewis et al (1981), value added may be calculated as the difference between the value of the goods or services produced by team, i. e. sales revenue lessens the value of the goods and services purchased from outsider's i. e. the cost of brought-in materials and services.

b. Importance of value added:

Value added is an important appraising measure to judge the operational performance of an enterprise. As value added becomes more widely used and understood in industry and commerce, it may begin to be used as general performance indicator. Value added is a basic and broad measure of the performance of an enterprise. Many companies choose added value as the performance yard stick for their productivity scheme, as a ratio between wages and value added.

At present, almost every financial report refers to profit but rarely to value added. There is a direct relationship between value added and profit. Value added is a valid performance measure and can be used in the same way as profit to evaluate company performance. Value added is a basic measure because it indicates the net output or wealth created by the enterprise. If an enterprise fails to generate wealth, it cannot survive and grow. An enterprise can exist without making profit but not without generating value. The enterprise not

making profit may be deemed as ill but not adding value may be regarded as evil Desai (1984).

It is a broader concept than profit that just forms a part of value added. The familiar profit and loss statement shows the performance of the company as it concerns the shareholders whereas the value added statement shows the performance of the company as it affects employees, providers of capital and the government. The value added statement shows how the value added by the company has been distributed among those interested parties who have created the value.

The value added statement shows the return to all, involved in the company, in the form of wages, etc. to those who have contributed their skills, dividends and interest to those who have provided capital or loans, taxes of various kind that are paid to the government whereas retained earnings are ploughed back into the company to facilitate expansion Brown and Howard (1982).

While preparing plans and fixing targets of the company, financial managers usually set a profit target. But as suggested by Brown and Howard (1982), value added could be a more appropriate criterion. They have proposed that to optimise added value is more meaningful than to optimise profit because added value determines the reward for employers as well as for providers of capital. Therefore, in addition to be used as a measure of performance this index can be used as the basis for incentive schemes. It will be appreciated that the largest single distribution of value added will inevitably be in the shape of payment to employees. By definition, value added excludes the cost of raw materials so that

wages and salaries will normally take the largest share of value added. Therefore, incentive schemes can be designed in the light of value added.

c. Significance of value addition:

A number of advantages may arise from using the value added. The main advantage of value added is its simplicity. It is becoming popular for communicating financial information to non-accountants. However, it cannot replace existing financial statements. Value added simply represents a different viewpoint on the assessment of business performance and ways of communicating financial information.

A value added statement shows clearly the rewards that have been obtained by each interested party be it be employees, government, providers of capital or the business itself. Trend can be set by index numbers where data are provided over a period of years.

Value added can be a moral conquer (Brown and Howard, 1982). It can be used to develop a sense of team spirit among the employees. Thus, value added may create a valuable human asset for the company.

At the present time of inflation, the value added index can be used as a basis for incentive schemes. This may provide a firm case for wage settlement. Value added may also be used as a measure of labour productivity. In a wage settlement agreement labour productivity plays a vital role.

d. Value added statement:

As a measure of value added device, various companies are presenting the value added statements in their annual reports. The value added statement shows the value added by the company during a period of time and the manner in which it is distributed among employees, providers of capital and the government. B. Cox (1976) has suggested two methods of preparing the value added statement *viz.* the subtractive and the additive method. In the former method, value added may be calculated by subtracting 'bought-in-costs' from sales revenues. Bought-in-costs include the cost of raw materials consumed and cost of services from outsiders. In the later method of preparing value added statement, profit before tax plus employee cost, depreciation and interest are added to arrive at the figure of value added wherein employee cost includes wages and salaries including other benefits to the employees.

e. Gross value added vs. net value added:

According to one school of thoughts, the excess of turnover plus the income from services over the cost of bought-in materials and services is termed as gross value added. The annual charge of depreciation is deducted from the gross value added and the remainder is known as net value added. According to another school of thoughts the excess of turnover plus the income from services over the cost of bought-in-materials as services is termed as value added and the annual charge of depreciation is known as an application of value added

available to the owners of the enterprise in the form of retained earnings. The first school of thoughts has been followed in the present study.

2.4.3 Productivity

The analysis of productivity is important in order to appraise the performance and the quality of social and economic policies at national and sector levels. It is important to determine the effectiveness and efficiency of an enterprise. Productivity improvement is necessary for economic growth, especially in resource poor developing countries like Nepal NPEDC (1998). 'Productivity' is going to be very important for economic development. In free global markets, it is difficult for inefficient and unproductive business concerns to survive. Experience of the developing countries shows that where the level of productivity is low, the rate of growth of national income saving and capital formation are also low FNCCI (1996). Countries with low productivity lack capacity to absorb and utilize available resources efficiently and effectively resources are either utilized less or misused without being translated into growth and welfare. A business concern cannot continue to exist unless it maintains a competitive level of productivity. Investment and capacity expansion in individual industries are accompanied by productivity growth Pradhi (1995). Productivity is the most important long-term resources not only for the success of an organization and individuals but also for national and social development Prokopenko (1990).

The role of productivity in increasing national welfare is now universally recognized. Increase in productivity is the main source of economic growth in

every country having either a market economy or a centrally planned economy. On the other hand, slackening of growth, stagnation and decline bring about slowdown in productivity improvement. It is a well-known fact that failures mainly occur when a company aims at maximizing sales and profit or minimizing costs. A company can integrate and balance the areas of marketing, profits, production costs, and return on investment, sales and output only when productivity is taken as the starting point of any business and management decisions. It must be planned, organized, implemented, measured and corrected. Developing countries like Nepal should focus mainly on productivity at both macro and micro levels and launch productivity movement learnt from the rapid growth companies. The government of Nepal has lately felt the need of organized sector for productivity promotion in 1993 A.D. and thus established an organization called National Productivity and Economic Development Centre Limited with a view to integrate and enhance the effectiveness of programme relating to improvement of quality and productivity of domestic products in the present context of open and liberal economic policy of the country Shrestha (2004). However, this organization has limited its studies to measure the labour at national and sector levels only. Few other studies on productivity measurement at micro level (firm level) found in Nepal covering only a year or two's data are also limited to labour productivity. It proves that no one has paid proper attention for productivity measurement in Nepal so far. Thus, this study attempts some efforts to observe the trend of productivity of the sugar mills of private and public sectors selected for study.

a. Concept of productivity

In general, productivity means relationship between the output generated by a production or service system and the input provided to create this output. In other words, productivity means efficient use of input resources to obtain maximum output. It also means improving quality of that output. Prokopenko (1990) defined productivity as the efficient use of resources- labour, capital, land, material, energy and information in the production of various goods and services. When the same resources that were employed in the past now produce more than they did before, then, the productivity is supposed to be increased Fabricant (1973:1). Regardless of the type of production, economic or political system, the definition of production is the same, which is

$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

Productivity can be defined in various ways. The organization for European Economic Cooperation (OEEC) defined productivity as quotient obtained by dividing output by one of the factors of production. Similarly, the productivity of capital, investment, raw material accordingly whether output is being considered in relation to capital, investment or raw materials, etc. (Surmanth, 1984). ILO has defined productivity as the ratio of the units of goods or services produced to the resources consumed in production during specified period of time (George, 1979). The European Productivity Agency (EPA) has defined the productivity on the basis of behavioural aspect. It says, "Productivity is an attitude of mind. It is a mentality of progress, for constant improvement

when exists. It can certainly do better today than yesterday and continuously. It is the constant adoption of economic and social life to changing condition. It is the continual effort to apply new methods and techniques. It is the faith on human progress Bhatia (1991).

The current concept of productivity is related more with improve in quality of work force, products and services. The focus of productivity has shifted from maximum use of human resource, capital and technology to effective and efficient use of these resources. The present day productivity concept is synonymous to efficiency, higher productivity, cost saving, waste reduction, optimisation and rationalization of resource use. A wider concept of productivity is the state of mind that constantly drives to improve as performance, always seeking to do better today than yesterday and even better tomorrow than today.

Higher productivity, here, means achieving higher output in terms of volume and quality for the same input. In short, higher productivity means more production with the same expenditure of resources or the same amount is produced at less cost, thus, releasing some of resources for the production of other things Kanawati (1979). Thus, analysing the above concept, productivity is a measure of input efficiency. It indicates how many units of output are obtained from a unit of input, Gupta (1992). Productivity measurement can be used for sharpening general economic policy for casting national income and output, occupational shifts and for labour requirements, etc. It may also be used in determining the distribution of product of industry and thereby in a sense it is relevant for collective wage bargaining. At industry level, such measurement is

highly helpful. Comparison of productivity changes within an industry over a period can indicate various interesting facts, regarding technical, economical and managerial aspects in the industry. At the plant level such measurements focus on one aspect of “managerial effectiveness in the individual plant or group of plants under the same management” Beri (1962). Efficiency, maximum output, economy, quality, elimination of waste and satisfaction of human beings through increased employment, income and better standard of living are some of the objectives of productivity movement in our country or for that purpose in any other country. The significance of productivity in increasing national welfare is now universally recognized.

There is no human activity that does not benefit from improved productivity. This is important because the increase in gross national income (GNP) is produced by improving the effectiveness and quality of manpower than by using additional labour and capital. In other words, when productivity is improved, GNP grows faster than the input factors Prokopenko (1990).

b. Clarification between productivity and other terms

i. Productivity and production

The term productivity is often confused with the term production. A common thinking in many people’s mind is that the greater the production, the greater the productivity, which is not necessarily true. Production is an act of producing goods and services whereas productivity is the efficient utilization of resources (input) for the production of goods and/or services (output). In terms of

quantity, production is the quantity of output produced whereas productivity is the ratio of output produced to the input(s) used. Situation may arise when the productivity goes down despite an increase in production or the productivity increases along with the production Sumanth (1984). Thus, an increased production does not necessarily mean an increased productivity.

ii. Partial productivity and overall productivity

Productivity is the ratio of inputs to outputs as discussed above. Inputs include material, labour, capital, energy, overheads, etc. When the productivity of one class of input is computed assuming other factors remain unchanged for the period, it is called as partial productivity. On the other hand, when one wants to know the combined effect of all inputs, it is termed as overall or total productivity measure. It measures the total productive efficiency of the combined resource input used by an enterprise. As it is impossible to segregate the effect of various inputs, measuring overall productivity may be taken as a true yardstick of the efficiency of a manufacturing unit Gupta (1992). Partial productivity measures, if used along with total productivity indicators, are the good diagnostic tools to pinpoint areas of productivity improvement.

iii. Productivity and profitability

The terms productivity and profitability are not synonyms. Though as an index of productivity, profitability is regarded both as a measure of economic efficiency and a management guide to greater economic efficiency. The real net profit figure, however, simply reveals a satisfactory balance between the value

received and the value given Shrivastava (1982). Improvement in productivity may cause higher profitability but profitability does not necessarily increase the real wealth of an enterprise as it may increase whenever either the selling prices are increased or by overlooking the effect of inflation, etc., Gupta (1992). Such a situation may have a zero effect of the level of productivity.

iv. Productivity and capacity utilization

Productivity is also related to capacity utilization. Higher the capacity utilization, higher would be the productivity or vice-versa. Therefore, continuous attention is being paid on capacity utilization to achieve the level of productivity. Capacity utilization is a function of a number of factors. Unless the productivity of individual factors is controlled and improved, there is least possibility of improvement in capacity utilization Kayastha (1997).

v. Productivity, efficiency and effectiveness

Many a times the terms productivity, efficiency and effectiveness are confused with each other. Efficiency is the ratio of actual output attained to standard output expected, whereas effectiveness is the degree of accomplishment of objectives. In other words, how well a set of results is accomplished reflects the effectiveness whereas how well the resources are utilized to accomplish the results refers to the efficiency Sumanth (1984). Productivity is a combination of both effectiveness and efficiency, since effectiveness is related to performance whereas efficiency is related to resource utilization.

2.5 Review of Earlier Studies

A number of studies have been done in the field of operational and financial performance. Some of the earlier studies made in this regard in different countries particularly in India and in Nepal have been reviewed below:

2.5.1 Studies on Sugar Industry in Different Countries

The main object of the Lal Bindrawan (2006) study was to provide and exposition of sound principles for a technique of analysis and interpretation of the financial analysis statement of sugar companies. For the purpose, he selected ten sugar industries covering ten years from 1991 to 2000. The study made a modest attempt in assessing the financial health of the selected sugar companies of state of Uttar Pradesh applying financial ratios to the performance data of ten sugar companies in U.P. state. The financial analysis had been expressed in term of financial ratio-liquidity, activity, solvency and profitability. In liquidity of the units, the study found lower position. The current ratio and quick ratio were much below of the normal rate 2:1. Companies were unable to pay its future bills on time due to slow-down in cash collection. In efficiency, the fluctuating trend of fixed assets turnover of all sugar industries was recorded. The low fixed assets turnover indicated inefficient management and under utilization of fixed assets. The total assets turnover was found at increasing trend. It observed that the higher activity ratio existed mainly due to the use of lesser number of skilled workers and small average size of the sugar companies. All the sugar companies

selected for the study had positive working capital ratio. All the selected companies had positive debt-equity ratio and all most all the sugar companies were highly levered. The burden of interest was quite heavy. It was due to external sources of finance to meet their capital needs. In analysis of profitability of sugar industries, the study showed that gross profit ratio and operating profit ratio were at increasing trend. He found increasing rate of return on net worth, return of capital employed and return on investment. No negative ratios were found during the period of study.

Sayed Jalil Hossini A.N. (1994) analysed the total installed capacity and capacity utilization of sugar production of sugar industry of India for the period of twelve years from 1979-80 to 1990-91

Year	Installed Capacity (In lakh tonnes)	Capacity Utilization (In %)
1979-80	59.75	64.6
1980-81	63.12	81.6
1981-12	64.56	130.7
1982.83	65.65	125.4
1983.84	68.81	68.81
1984.85	72.74	84.5
1085-86	75.95	92.4
1986-87	78.56	108.2
1987-88	81.21	112.2
1988-89	83.02	105.4
1989-90	93.41	117.6
1990-91	98.48	112.3

The study showed the installed capacity of sugar production in lakh tonnes and the variation of in installed capacity in percentage over the period of study.

The percentage of capacity utilization also was shown by researcher and found that although installed capacity in lakh tonnes were at increasing trend but the annual growth rate of installed capacity were marked with mixed levels of trend. For instance, the annual growth rate of installed capacity was observed at decreasing trend from 1980-81 to 1982-83, 1984-85 to 1988-89 and 1989-90 to 1990-91 where as it was at increasing trend from 1979-80 to 1980-81, 1982-83 to 1984-85 and 1988-89 to 1989-90 during the period of twelve years study. Similarly, in capacity utilization, both type of trends increasing and decreasing trends were observed during the period of study.

Gupta (1992) found in the study that the sugar industries still were facing problems related to infrastructure, raw materials, capacity utilization, production of sugar cane, labour, pricing, finance, by products storage, excise duty and taxes and defective pricing policy. The main objective of his study was to examine the financial position and performance of sugar industry in Uttar Pradesh that included 20 sugar industries from private, public and co-operative sectors covering five years from 1985-86 to 1989-90. Therefore, the study analysed capital structure, pattern of short-term financing and working capital position in addition to examine the financial performance of the industry in terms of its profitability position. It also made a comparative study of the financial position and performance of sugar companies belonging to the sectors viz; public, co-operative and private sectors with a view to locating the sectoral differences.

The findings of the study showed in relation to capital structure that the debt-equity ratio of those companies was at declining trend and interest coverage was very poor. The capital structure position of private sugar industries was better than the public and co-operative sugar industries. In case of short-term debt, the increasing trend of short-term debt was observed. The ratio of short-term loans was relatively higher in public and co-operative sectors. In working capital, it found that the overall working capital management of sugar companies in Uttar Pradesh was in a poor shape throughout the period under study. Current and quick ratios were far below their standard norms. Current assets turnover ratio was very poor. In public and co-operative sectors, the net working capital was observed at minus during the study period. The appraisal of profitability performance showed a highly dissatisfactory profitability position of sugar industries in Uttar Pradesh. That was borne out by the fact that profitability ratios like net profit margin, net profit to net worth ratio and return on investment were negative owing to heavy losses sustained by industries throughout the period under review. The operating profit also was observed negative. The only good hope left with sugar industries of Uttar Pradesh was that there was a declining trend in their negative profitability ratios over the 5 years period. If the same trend would be continued, those companies might be soon start earning profits. It was observed that among those three sectors, the position was particularly serious in the case of public and co-operative sectors.

Mahajan (1991) found that sugar is a manufactured item and forms the backbone of economies of a number of producing countries like Cuba, Fiji,

countries in the west Indies and even the USA where sugar cane cultivation and manufacturing forms the bulk of employment generating sector. In a number of European countries sugar is one of the important commodities of agricultural base manufactures mainly in the form of beet sugar. Because sugar is grown in so many regions of the world and provides farm employment as well as employment in the manufacturing sector, sugar production has been sucked in to the realm of governmental agro-industrial policy in almost every major country, and this has led to a tendency towards heavy governmental intervention in international and domestic sugar market. About 30 percent of the world sugar production enters into international market with intervention and this segment of the market, typically one-third or more represents an entrepot trade i.e. re-export of sugar by importing countries or sugar that is sold under preferential arrangements towards unrelated to day market price and even payment arrangement are work out in local currencies which are non-convertible (such as sugar trade between Cuba, and East European countries). Approximately 20 percent of the world sugar output is bought or sold in the free market at the world market prices quoted in commodity exchanges in New York, London and Paris where all sorts of speculative and hedging deals are made for future settlements.

Samaria (1988) made an analysis and evaluation of the performance of the sugar industry in India. Due to a large number of factories in operation in the country only joint and public sectors factories had been chosen for the study. Those were largely concentrated in the states of Uttar Pradesh, Maharastra, Bihar, Tamil Nadu, Andhra Pradesh and Karnataka. For the purpose of the study,

only fifteen companies had been selected to covering ten years from 1975-76 to 1984-85 on the basis of stratified random sampling having different installed capacity from the above states. The major findings of the study were as follows:

Financial Strength

1. Decline in the percentage of equity share capital to the total assets of the industry of India.
2. Preference share capital to total assets of the industry in India as a whole declined.
3. The study of net worth showed a fluctuating trend throughout the period of 10 years.
4. The common size statement of fixed assets in the sugar industry in India revealed a decreasing trend in the industry as a whole during the period of study.
5. Increasing trend in current assets and current liabilities was observed.
6. Current financial position of the sugar industry as a whole was not satisfactory during the period of the study.
7. Liquidity position of the sugar industry as a whole was not satisfactory.
8. Debt-equity ratio was at increasing trend.

Profitability

1. Sale of sugar was at rising trend during the period of study.
2. The amount of operating profit in the sugar industry in India showed a fluctuating trend.

3. The figure of net profit after tax and interest showed a fluctuating trend during the whole period of study in sugar industry of India.
4. Return on capital employed was at fluctuating trend.
5. The profit margin ration in the sugar industry as a whole in India had a decreasing trend.
6. Return on shareholder's equity funds was at fluctuating trend.

Working capital

1. The amount of current assets, current liabilities and working capital was at fluctuating trend.
2. Inventory formed a major portion of the current assets.
3. The turnover of working capital and inventory was at fluctuating trend as a whole where as receivables turnover was at decreasing trend.

2.5.2 Study on Performance Appraisal of Various Enterprises in Other Countries

The objectives of the study made by Selvam M. and Raja M. (2006), was to give the answers of various questions as how many days of working capital the firms of steel industry under study hold, does it vary from company to company in the steel industry, does it vary over a period of time, what are the cash conversion efficiencies, days of operating cycle and days of working capital of steel industry in India, do they vary from company to company and how has it varied over a period of time. This study was based on working capital performance of 25 steel companies in India. Those companies with top sales

performance were selected for the purpose of this study which covered three years from 2001-02 to 2003-04. The performance of day's operation cycle of steel companies during the period of study showed the efficiency in managing its inventory and receivables. It was significant to note that lower ratio of day of collection showed the higher efficiency in managing the inventory and receivables. The study of days of working capital of steel companies did not indicate good performance of a firm as high negative and high positive of days of working capital were observed. It was felt that this exercise would help the company to manage their working capital better and add value to the firm.

Baier Scott L.Gerald P. Dwyer Jr. and Robert Tamura (2006) have examined a new set of data covering 145 countries over long time span provided evidence that little of the average growth of output per worker across the world was directly due to the growth of total factor productivity (TFP) 14 percent for all of the countries. This conclusion, however, reflected substantial variance across countries – TFP accounted for about 34 percent of the average growth of output per worker in the Western Countries and 26 percent in Southern Europe and the NICs. Other regions were at less, negligible, and even negative growth of TFP. These negative growth rates were consistent with the importance of institutions changes and conflicts. The evidence indicated that, over long period of time, the growth of output per worker was associated with accumulation of physical and human capital and technological change. At first glance, this conclusion seemed to be innocuous at best, but it was controversial in indicating that the growth of physical and human capital was important for growth.

Connoly Ellis and Fox Kevin J. (2006) examined the relationship between high-tech capital use and productivity. Using Australian data, some evidence was found of a positive relationship between high-tech capital use and productivity in the; market sector, but there was much less evidence of excess returns. These results were robust to the use of a variety of different measures of high-tech capital. At the industry level however, the relationship was significant and positive for only some industries. This suggested that the benefits of investment in high-tech capital were not spread evenly across the economy.

Egger and Peter Egger (2006) presented first insights into the role of international outsourcing on the productivity of low-skilled workers in EU manufacturing. Whereas in the short run international outsourcing exhibited a negative marginal effect on real value added per low-skilled worker, the long-run parameter estimates revealed a positive impact. According to the unavailability of data on skill-specific factor reward, the study estimated a nested CES primary production function approach for 12 EU countries and 21 NACE two-digit industries over the period 1992-97. The evidence was inconsistent with the long-run findings by Feenstra and Hanson (1999) for the U.S. economy, because outsourcing seemed to exert a significant negative marginal effect on real value added per low-skilled worker. For the sample of countries and the underlying level of aggregation, the data were not available on skill-specific factor rewards, hours per worker and the actual capital services. Therefore, they relied on employment figures and estimates of the capital stocks as their controls. The preliminary findings suggested that low-skilled labour productivity growth in

European manufacturing-besides unobserved influenced- in the short run was mainly induced by the change in physical capital stocks and skill upgrading rather than fragmentation of production across borders.

Tornlund Erik (2006) examined the change in labour productivity of timber floating on tributaries of northern Swedish rivers between 1930 and 1960. During this time, timber-floating operations were still relatively widespread but were put under economic pressure due to rapidly increasing labour costs and decreasing timber dimensions. This study examined various factors that could conceivably explain these changes in labour productivity in timber floating on the tributaries of the Ume and Vindel rivers. The results showed that during the 1950s a partial phase-out of timber floating on the tributaries had a very small effect on labour productivity. Thus the combination of investment in the existing float ways and the changes in the volumes of timber was the factor which best explained difference in labour productivity among different tributaries. Timber floating on the tributaries was influenced by annual variations in natural conditions, but since the relationship between investment costs and changes in labour productivity was significant, it still seemed to be reasonable to draw the conclusion that investment in existing float ways resulted in increasing labour productivity during the examined period. These findings also contribute to the discussion of rationality and expectations as an explanation for investments in existing technologies, particularly in this type of transport system.

A study was undertaken by Roji George, C. Prema and Bijo E. Kurien (2006) with a view to have an insight into the Economic Value Addition (EVA)

concepts. The main objective of the study was to know the level of EVA on South Indian Bank Ltd. and to find its relationship on productivity of the company. Financial performance of the bank for the period of 10 years (1994-95 to 2003-04) was analysed for computing EVA. The equity approach was adopted and cost of equity capital was computed based on CAPM method. The result of the study showed that company was creating economic value to its shareholders during the last five years (1999-00 to 2003-04) and also found that there was a positives relation between economic value added and productivity.

The purpose of the study conducted by A. Vijay Kumar and M. Krishnaveni (2005) for the Paints Sector of Indian Chemical Industries was to measure total factor productivities, as well as partial factor productivities for the selected sector of chemical industry overtime. Further an attempt has also been made to explain annual variations in factor productivities with the help of multiple regression frameworks. It was concluded that estimates of TFP for pain industry showed a rising trend in all the three direct measures of TFP. Estimates of the Cobb-Douglas production function revealed that returns to scale was not constant for Paints Industry during the study period. Estimates of the CES production function also showed that returns to scale was not constant for Paint industry. Further, elasticity of substitution was less than unity for Paint Industry during the study period. Annual variations in factor productivities showed that a significant positive relationship was observed with value of added for this industry. This showed that expansion in scale of production has been generating growth in total factor productivity. Further, a positive significant relationship with

time was observed for Paints Industry. This indicated that total factor productivity was generated by labour management relations in this sector during the study period.

Sandhu H.s. and Kapoor Shweta (2005) observed that although there has been considerable research into the relationship between corporate social responsibility (CSR) and corporate financial performance (CFP), yet no real consensus exists as various studies revealed conflicting result reporting positive, negative or inconclusive relationship between the two. The purpose of this paper was to explore the association between corporate social responsibility and financial performance based on the dataset of 20 leading companies operating in India and covering a three year period from 2000-01 to 2000-03. The relationship was examined by using correlation and regression analysis which revealed no significant association between the variables under study. They found that the association between CSR and CFP for the sampled companies and for the period under reference did not exist. In addition, regression analysis supported the notion that neither corporate social responsibility led to improved financial performance nor financial performance influenced the manifestation of corporate social responsibility. Thus looking at from the firm's financial performance perspective, participation in social activities was at the discretion of management though it was appreciable from the viewpoint of more ethics.

Arnold Jens Matthias and Hussinger Katrin (2005) examined the causal relationship between productivity and exporting in German manufacturing. They found a causal link from high productivity in presence in foreign markets, as

postulated by a recent literature on international trade with heterogeneous firm. They applied a matching technique in order to analyze whether the presence in international markets enables firms to achieve further productivity improvements, without finding significant evidence for this. They concluded that high-productivity firms self-select themselves into export markets, while exporting itself does not play a significant role for the productivity of German firms.

Daphne Nicolitsas (2005) performed a study that labour productivity growth in Greece has gained considerable momentum in recent years, particularly in certain sectors of economic activity (e.g. transport and communications). This improvement is attributed to the increase in capital per worker but predominantly to “technological progress”. The analysis was not able to quantify the extent of productivity gains attributable to cyclical factors, such as the more intense use of production factors. However, sustaining these high rates of productivity growth in the years ahead will depend on the degree to which the potential output of the economy has increased as a result of the recent phase of robust economic growth. In any event, as productivity levels in Greece continue to lag behind the corresponding levels of the EU-15, it is imperative to establish the exact reasons for this gap. Possible explanations for Greece’s lower productivity should be sought in the quality of the business environment, the lack of competition, the small size of Greek firms, the delay in the adoption of new technologies and the shortcomings of the education system. In addition to lower productivity, which is the main reason for the gap in per capita income with the EU-15, Greece also has a lower labour, market participation rate. This mainly

reflects the more advanced age of labour market entry and the lower participation of women compared to the EU-15 average. These differences are due to “cultural” factors, to the higher rate of unemployment and to the broader enrolment of young adults in educational activities. In view of the anticipated demographic developments, both productivity and the employment rate will have to increase if Greece’s average income is to converge towards that of the EU-15.

A study of Bhatt Pushpa and Manjunatha A. (2004) aimed at giving an insight into the financial analysis of the Independent power projects in India (IPP), under Government Power Policy, 1996. Those projects were generally executed on BOOT basis, wherein the IPPs built, owned, operated and then transferred the project to statutory authorities. The project appraisal using Net Present Value (NPV) method was attempted. During the period of study they found that the return earned by an IPP depended on construction period, plant load factor (PLF) and incentive rate. For a power purchase agreement validity period of 25 Years and a discount rate of 14 percent, an IPP was financially viable, and earned a NPV of Rs. 38.64 crores for an equity investment of Rs. 200.00 crores. At a mean PLF of 85 percent, a mean incentive of 0.6 percent and a mean construction period of 3 Years, the project was viable even if the discount rate would go to 16 percent. If the discount rate would come down to 9 percent, the IPP could earn a NPV of Rs. 168.34 crores. In the light of the above, IPPs were not only financially viable, but also an attractive investment opportunity.

Trivedi Pushpa (2004) analysed Industrial performance of various states needs to be viewed in totality, i.e. with respect to growth of output, employment

and productivity. Moreover, productivity levels are as important as productivity growth trends, as both are pertinent in the convergence process. The study attempted to interpret inter-state difference in productivity movements in organized manufacturing sector, in a larger perspective of employment and output trends. The study empirically confirmed the existence of inter-state differences in productivity levels and growth rates. It pointed out that states, such as, Bihar and West Bengal were diverging away from rather than converging to the growth rates of output of organized manufacturing sector at the national level. Though productivity growth in Bihar appeared to be high, it was mainly achieved by joblessness. Madhya Pradesh and Rajasthan, which have been considered as BIMARU states, seemed to good performers from a wider perspective and showed the promise to get them rid of their economically backward status.

Sharma Seema and Upadhyay V. (2003-04) measured the Total Factor Productivity (TFP) in Indian Fertiliser Industry. Tran slog cost function had been fitted to estimate the different components of TFP viz. returns to scale, technical progress, elasticity of substitution, scale bias and technical bias over a period of 25 years from 1973-74 to 1997-98. The analysis found that industry exhibited decreasing returns to scale during the entire study period. Technical progress has taken place at an increasing rate. The study revealed that technical bias has been in favour of material input. At the same time analysis showed that scale bias has been against this input. Energy and material came out to be substitutes for capital leading to a major implication that output can be produced beyond the installed capacity (i.e. without adding to the capacity) by using more energy and

material specially when these two inputs emerge as complementary to each other.

The aim of the Sharma G. (2004) study was to know that how the Pharmaceutical Companies utilised their resources and to appraised the performance of production, productivity, working capital, fixed assets and profitability etc. For this purpose, the study selected five companies of the pharmaceutical industries mainly engaged in drugs and pharmaceuticals manufacturing covering five years (1996-97 to 2000-01). The study found that the over all productivity was at improving position. So, it was seemed to be that the selected companies utilized the material, labour and overheads efficiently. In profitability performance, the increasing of gross profit, increasing of operating ratio, fluctuating trend in net profit, mixed trend of operating profit, increasing trend in return on capital employed and fluctuating trend in return on net worth were recorded. The fixed assets turnover of the companies under study was towards an increase trend. In the case of working capital, the higher current ratio was observed and quick ratio also was recorded more than the standard norm. They showed excessive investment in working capital. With regard to value added, the proportion of value added to sales revenue showed a fluctuating trend during the study period. In allocation of value added, the largest share of it was retained by the company for its research and development purpose followed by payment to Government in form of excise duty and taxes, to employees, to shareholders and rest to providers of capital.

Shrivastav P. (2003) analysed the profitability of ten selected textiles industries of Rajasthan by covering 10 years from 1993 to 2002. During the period of study he found that the average of gross profit margin before depreciation and interest were the highest in 1998 and lowest in 2002 in all most selected textile industries. The main reasons for low gross profit margin were cost escalation, demand slacks, non utilization of additional capacities, etc. The net profit margin of textile industries up to 1995 was in increasing trend but thereafter they started towards decreasing trend. It was suggested to reduce the expenditure for improving the profit, making performance appraisal of top level management, making policy for replace the loan capital by issuing the share capital which could be reduce the burden of interest.

Asli M. Colpan, Takashi Hikino, Masahiro Shimotani and Atsushi Yokoyama (2003) examined the effectiveness in terms of financial outcomes of product diversification strategies that the Japanese textile firm have followed since the early 1990s. The empirical analysed of recent diversification measures adopted by the Japanese firms have been inadequate, especially when compared to those on the U.S. companies. Besides, the diversification studies of Japanese enterprises have mostly been qualitative and descriptive. For the study, the sample included the textile companies listed on the first and second section of Japan's three largest stock exchange markets; Tokyo, Osaka and Nagoya. The study was covered from 1991-2000. The principal finding among them was that firm adopting the strategy of related diversification, wither within

textiles (related constrained) or outside textiles (related-linked), outperformed the enterprises with other strategies.

This result for Japan's textile industry, along with many previous studies in the literature, represented the support to the premise that the resource and capability-based theories of the firm have been emphasizing: Internal resources within the firm function as the major sources of competitive advantage, as long as they were utilized effectively. On the one hand, the companies were certainly able to improve profitability when they would utilise their accumulated capabilities in related product markets. On the other, though, their own textile and downstream businesses were not necessarily the promising targets as investment outlets, except for a few enterprises that have already secured their own market niches with textile domains.

A study of Agrawal R.N. (2001) was based on the data from 58 large Central Public Sector enterprises (CPSE) producing foods as well as data from industry groups provided by the Department of Public Enterprises, Ministry of Industries, and Government of India for the period 1990-91 to 1998-99. The objective of the study was to analyse the technological change, technical efficiency and total productivity growth of CPSE, industry group-wise and firm-wise. The results showed that the public sector enterprises had not experienced a significant technological change during the 1990s. Results also showed that a majority of the firms had low levels of technical efficiency and that the efficiency had not improved significantly over time. However, growth of technical efficiency was observed in some firms in the engineering sector and many firms in the

petroleum producing/selling sector. He found in his study that the financial performance of the public sector at the aggregate level was not worse (if not better) than that of the private sector. As judged by the partial productivities as well as by the index of total factor productivity, there seemed to be a consistent decline in the productivity of CPSEs in several industrial groups as power, petroleum, fertilizers, medium and light engineering and consumer goods. In certain industrial groups as steel, minerals and metals, chemicals and petrol-chemicals, productivity seemed to have shown some growth up to 1995-96 and then started falling. Productivity growth was evident in the transport equipment sector throughout the period while in the heavy engineering group productivity was showed an upward trend since 1995-96 only. The panel data estimated using the Cobb-Douglas production function and Random Effect Model showed that coefficient of time trend was small and statistically insignificant. That showed that the Public Sector Enterprises had not experienced significant technological change during the 1990s. Further, the results pointed to decreasing returns to scale in production.

A study of Gupta Sunita (2000) made a detailed analysis of working capital management in Food-Processing Industry in India. For this purpose, 84 companies were selected covering eight years from 1989-90 to 1996-97. The techniques of ratios, average, coefficient of variation and regression analysis were employed in the study. All such enterprises were covered under four major categories namely Beverages, Food-Products, Sugar and Tea. The study

covered both private and public sector units in food processing industry in India.

The main findings of her study were:

1. The analysis of size of working capital revealed that working capital grew experientially over the study period in food-processing industry and in its various categories except in public sector which did not exhibit any trend. Investment in working capital formed the largest portion more than one-half of total assets in food-processing industry and majority of its categories except tea companies, foreign and medium sized companies where proportion of working capital was slightly lower than one-half of total investment.
2. The analysis of adequacy of working capital to pay-off current liabilities showed that working capital in food-processing industry as a whole was not adequate. Traditional ratios, current ratio and quick ratio were not up to the standard even in a single year in the food-processing industry as a whole. Liquidity as shown by the current and quick ratio was not only inadequate but decreased over the study period.
3. In structure of working capital, inventory accounted for the largest portion followed by receivables, marketable securities and cash.
4. In efficiency, the decreasing trend was observed in working capital turn over where as increasing trend was observed in the length of operating cycle.
5. A comparative analysis of management of working capital management in private and public sector enterprises with respect to adequacy of working

capital to pay-off current liabilities revealed that public sector had better liquidity than private sector in terms of traditional ratios.

6. Regarding the working capital turn over and operating cycle public sector enterprises were more efficient than their counterpart in private sector.
7. The management of working capital in term of utilization of investment in working capital was better in foreign companies as compared to Indian companies.
8. The efficiency in utilization of investment in working capital and its components measured by turn over ratios showed that sugar companies were least efficient in the management of inventory. The inventory turnover was very low in sugar industry. It was mainly due to very slow turnover of finished goods inventory which formed a major portion. It underlined the need for better management of inventory in sugar companies. Sugar companies were assumed to have the highest risk in the financing of working capital and Tea companies at the lowest. Sugar companies financed only 24 percent of working capital from long-term sources and in later years it came down to 14 percent. It could, to some extent be attributed to continuously increasing inventories.

Gupta (1996) conducted a study with the object of analysing and evaluating the financial performance of the Wagon and Engineering Industry of India. For this purpose seven major Wagon and Engineering companies in India were selected on the basis of availability of reports and other data covering eight years from 1978 to 1985. The study employed several accounting and statistical

techniques which were ratio analysis, trend analysis, comparative statement analysis, average, analysis of variance, chi-square test etc. The study found that the overall performance of Wagon and Engineering industry as a whole in the light of consolidated profit and loss account was not satisfactory. In profitability, it was registered that the operating profit was very low. The operating losses were due to higher cost of input, salaries and wages etc. besides acute power shortage, labour troubles and slow downs. The return on investment in Wagon and Engineering industry as a whole was negative till 1982. However, it improved slightly in 1983 and 1984 but again declined in 1985 due to decrease in sales. In the financial soundness of a business, Wagon and Engineering industry as a whole could not maintain the current ratio at the standard norm. The quick ratio was always below the standard norm (1:1). The debt equity ratio of the Wagon and Engineering industry as a whole was negative throughout the period under study. The capital gearing ratio revealed a continuous decreasing trend. The industry and its units were almost entirely dependent for finance as long-term funds and preference share capital. Analysis of working capital revealed that the optimum levels of cash, inventory and receivables for the Wagon and Engineering industry were 4.59 percent, 51.59 percent and 41.84 percent respectively of the total current assets, based on the industry average. In relation to efficiency, the increasing trend of inventory turnover ratio was observed throughout the period. The study of value added generation revealed that the generation of value added marked an increasing trend in the Wagon and Engineering industry throughout the period under study.

Agrawal S.C.(1996) explored the nexus between wages and productivity in the selected public sectors in India were the main objective of this study. The major part of investment in public sector, at over 80 percent went in to enterprises producing goods, mostly basic and capital goods, and the remaining into services. The study, was therefore, limited itself only to the selected public sector manufacturing enterprises belonging to the central government. Out of the eleven groups of manufacturing industries in India's public sector the study was limited to the following eight groups. (1) Steel industry (2) Power industry (3) Petroleum industry (4) Fertilizers, chemicals and Pharmaceuticals industry (5) Heavy engineering industry (6) Medium and light engineering goods industry (7) Transportation equipment industry (8) Consumer goods industry. The study besides the eight industrial groups, had also been conducted for (a) aggregate of the selected eight groups of manufacturing industries, and (b) firms, with each group of an industry, two firms each had been selected which were generally the oldest and the largest in terms of the amount of capital and employed. The study covered 20 years from 1974-75 to 1993-94 for comprehensive analysis.

The major findings of his study were as follows:

1. His empirical analysis at the aggregate level and at a detailed level of disaggregating (for eight industrial groups of public enterprises at one level and for the sixteen firms at another) had clearly brought out the poor performance of public enterprises with respect to the total factor productivity growth for the entire period.

2. In partial productivity, a significant rising trend was observed in labour productivity where as the falling trend in capital productivity for the aggregate of industries.
3. Estimate of the Cobb-Douglas production function and the CES function disclosed a mixed trend. At the disaggregate level, the Cobb-Douglas production function estimates revealed constant returns to scale in Steel, Power and Medium and Light engineering industrial groups. For other industrial groups it indicated the presence of increasing return to scale except for consumer goods industry where there were decreasing returns. The CES production function not only provides constant returns to scale for Steel, Power and Medium and Light engineering, as had been revealed by the C-D function, but also for Heavy engineering. For the remaining groups, it supported the result obtained from C-D functions.
4. The regression analysis on variations in labour productivity and total factor productivity measured a significant positive relationship with valued added for both the aggregate level of industries and the disaggregate level of industries and firms.
5. The analysis of inter-industry and inter-firm differentials in labour and total factor productivity growth highlights the importance of the growth in valued added for labour productivity growth, it had been found to be significantly related to labour productivity.

Jain K. (1995) evaluated the performance and had an insight into the performance of SAIL and TISCO iron industries. An evaluation of financial and

operating performance had been done from the accounting point of view in order to assess and evaluate the effectiveness and efficiency of the performance of SAIL and TISCO. The major findings of his study during the period of ten years from 1984-85 to 1993-94 were as follows: -

1. Production performance: Iron and Steel Industry in India showed a fluctuating trend in ingot steel as well as in saleable steel production. The production indices of ingot steel production in SAIL and TISCO as well as in the industry indicated that the performance of TISCO was better than SAIL. The study of the capacity utilization of SAIL and TISCO revealed that the capacity utilization in TISCO was better than SAIL. The low production performance of the Iron and Steel Industry in India was due to irregular power supply, non-availabilities of adequate transportation facilities and poor quality of cooking coal.
2. Sales performance: The sales in Iron and Steel Industry in India marked an increasing trend throughout the period of the study. SAIL and TISCO also were registered the same trend.
3. Profitability analysis: In regarding the profitability, the increasing trend in the return on shareholder's equity was observed in TISCO while in SAIL it was at decreasing trend. Similarly, in TISCO, the ratio of return on capital employed was at increasing trend whereas in SAIL, it was at decreasing trend.
4. Value added analysis: In SAIL, the proportion of value added to sales revenue indicated the decline trend which showed the poor performance

of the company. On the other hand, it was at increasing trend in TISCO which showed better performance of the company.

Hajra S. and Vasudeva V. (1993) described about the trends in Productivity of Capital and Labour, Total Factor Productivity and International Comparison of Wage and Labour Productivity in their report as followings:-

1. Trends in Productivity of Capital and Labour: From the trends in investment, employment and output in the Indian economy, it is apparent that growth of output has not been commensurate with capital investment and as a result there has been no increase in the productivity of capital. For example with 1970-71=100, the index of productivity of capital declined to 89.5 in 1980-81. Since then there has been some improvement in the productivity of capital and the value of the index was 93.91 in 1987-88. In the manufacturing sector also, productivity of capital reached the lowest point, viz. 89.5 in 1980-81, i.e. with a time lag of one year. However, the recovery in this sector has been slightly faster such that the value of the index stood at 98.3 in 1987-88. Labour productivity in the Indian economy also reached the lowest point in 1979-80. The value of the index of labour productivity (1970-71=100) stood at 99.0 in 1979-80. Since then there has been appreciable recovery in the productivity of labour. Thus the value of the index stood at 123.1 in 1987-88. In the manufacturing sector also, the index of labour productivity was lowest at 95.0 in 1980-81 and since then it improved appreciably and the value of the index stood at 138.4 in 1987-88. This shows that growth of productivity of labour in the Indian economy during the 1980s has been about 2.8 percent

- per annum while in the manufacturing sector it has been 5.5 percent per annum.
2. Total Factor Productivity: In the case of total factor productivity (TFP), between 1970-71 and 1979-80, total factor inputs increased by 29 percent while output increased by 23.6 percent and the TFP index was 95.8 in 1979-80. This shows that productivity efficiency of the economy in 1979-80 was about 4.0 percent below that in 1970-71. Between 1979-80 and 1987-88, total factor inputs increased by 26.9 percent, while output increased by 48.1 percent, and thus TFP increased by 16.8 percent i.e. at the rate of 2.0 percent per annum. As compared with this in the manufacturing sector, total factor inputs increased by 57.6 percent between 1970-71 and 1980-81, and output increased by 46.5 percent, and thus TFP index stood at 93, i.e., 7 percent below the 1970-71 level. However, between 1980-81 and 1987-88 total factor inputs increased by 29.8 percent and output by 68.1 percent and thus TFP increased by 29.4 percent and at the rate of 3.8 percent per annum.
 3. International Comparison of Labour Productivity: Among the industrialised countries, the U.S.A., Canada and Japan had much higher labour productivity during the mid -1980s, and measured in terms of value of output per worker, it was more than a hundred thousand dollars. The level of labour productivity in France, Spain, U.K. and Austria was about half of that in the U.S.A. In Finland and Germany it was about 60 percent, and in Australia, Italy and Ireland, it was about 53-55 percent of that in the U.S.A. This shows that there is considerable variation in labour productivity even among the industrialised

countries. In the newly industrialising countries of Asia viz., Korea, Malaysia, Singapore, Thailand and Hong Kong the level of labour productivity was about half of that in most of the industrialised countries, except in the U.S.A. Canada, and Japan it was about a third of that in these countries. The level of labour productivity in Indian industry is in way behind that of industrialised countries and also significantly lowers than some of the leading countries of the Asian region. The level of labour productivity in India is one-fifth of that in Denmark, Finland Germany, U.K. Ireland, Australia as also in Chile, Venezuela and Singapore. It was in the range of one-third to half of that in Hong Kong, Korea, Philippines, Uruguay, Columbia and Turkey.

A study of Sharma M. S. (1991) evaluated the past performance, financial strength, liquidity position, profitability, future prospects for earnings, ability to pay interest, debt on maturity and operational efficiency of the Hindustan Zinc Ltd. The study covered the period from 1979-80 to 1989-90. In capital structure analysis, it found that debt-equity ratio of the company was at fluctuating trend where as the position of long-term debt was at continuing improving trend. The fixed assets to net worth and owner's equity to total assets were at fluctuating trend. In case of working capital, the current assets were recorded at continuing increasing trend over the period of study which showed a sound position of working capital of the company. A comparison of the trend of inventory, sundry debtors, loans and advance, cash and balances and others indicated that the speed of increase in the indices of cash and bank balances was higher than the indices of inventory, loans and advance and others during the period covered by

study. It was registered that the fluctuating trend of current ratio of Zinc Company was between 2.24 and 5.66 times where as the quick ratio varied from 0.77 to 1.29 times. Inventory turnover ratio was not satisfactory and debtor's turnover ratio was found at continuing decreasing trend. With regard to profitability, the uncertain trend of gross margin, fluctuating in net profit margin, fluctuating in operating ratio, fluctuating in return on capital employed and fluctuating in return on net worth were found. The overall profitability position of Hindustan Zinc Ltd. was not satisfactory during the period of study.

In the study of Jain S.C. (1991), automobile referred to a car for passenger. Nine companies (four Indian and five foreign) were selected for the study which covered ten years from 1978-79 to 1987-88. During the period of analysis he found that the inventory carried by Indian units was much higher as compared to the foreign units. It was suggested that government should make efforts to help the industry to get their inventories on proper lines to minimise inventory carrying cost. Inventory turnover ratio indicated that the foreign units were efficient in inventory management. The current assets to total assets ratio brought out that the Indian companies maintained a higher ratio as compared to the foreign companies. The operating cycle was longer in the Indian companies as compared to the foreign companies selected for the study. The trend in gross block and sales were found at increasing position in both Indian and foreign units during the period of study. Both companies generated sufficient funds in the form of net value added to meet its social obligation successfully during the period under review.

Sarswat (1990) observed the performance evaluation of drugs and pharmaceutical companies which were engaged in manufacturing, formulation and selling of basic drugs, pharmaceuticals, veterinary products, agro-chemicals, diagnostics, foods for infants, pesticides, consumer product, textile chemicals, biotechnical products etc. For this purpose five leading FERA companies having maximum capital employed viz; Glaxo India Ltd., Hind Ciba Geigy Ltd., Pfizer Ltd., Hoechst India Ltd, and Boots companies (India) Ltd., of India have been selected to cover five years from 1984 to 1988. The techniques like ratio analysis, trend analysis, value added analysis, and statistical tools were employed for evaluating the performance of drugs and pharmaceutical companies in India. In regarding operating profit, the performance of almost all the companies was found satisfactory. The gross margin and net profit margin were found at declining trend during the first three years of the study. In relation to efficiency, the increasing trend of fixed assets turnover ratio was found in almost selected companies. The ratio of capital employed to fixed assets was registered at increasing trend during the study period where as the ratio of fixed assets to current assets was recorded at declining trend. As a whole the performance of fixed assets to net worth was found very much satisfactory. Total assets turnover ratio, current assets turnover ratio were found at rising trend which showed the companies were utilising their assets effectively. The return on investment was recorded at declining trend where as the return on capital employed was recorded at rising trend. The return on shareholder's equity was found at fluctuating trend in almost all the drugs and pharmaceutical companies

under study. The interest paying capacity of the company was registered an increasing trend. A study of generation of net value added in drugs and pharmaceutical companies recorded that the highest net value was added by Boots Company (India) Ltd. An analysis of the application of net value added revealed that the employees in all companies occupied largest share in net value added in form of wages and salaries, followed by Government in form of tax, borrowers in form of interest, and shareholders in form of dividends.

The primary purpose Aziz A. study (1988) was to obtain a true insight into the performance of the selected tyre companies in India. An appraisal of operational and financial performance was made from the accounting point of view to assess the effectiveness of plans, policies and objectives of the industry by measuring the efficiency of the tyre companies under the study in various areas of operations. To attain the objective he selected five big tyre industries namely Appolo Tyres Ltd., Madra Rubber Factory Ltd., Goodyear India Ltd., Ceat Tyre of India Ltd. and Dunlop India Ltd. which covered 7 years from 1980 to 1986 for the study. The following were the major findings of his study.

1. Production performance: The production of tyres in India indicated a rising trend in which Dunlop India produced a wider range than other selected company during the period of study. The study of capacity utilization of tyres in India revealed that over installation of capacity resulted in a decreasing trend of the capacity utilization ratio up to the year 1985. The capacity utilization among all the companies under the study fluctuated throughout the period.

2. Sale performance: The progress of the sales of all selected tyre companies in India was satisfactory.
3. Profit performance: The proportion of cost of goods sold to sales on an average remained above 95 percent in all tyre companies. As a result the operating profit was observed very low. The proportion of net profit after interest and taxes to sales was also very low and even some companies suffered losses. The ratio of return on capital employed and return on equity were at fluctuating trend in all the selected companies.
4. Sources of funds: As regards sources of funds, the proportion of funds from operation to total funds marked a fluctuating trend in all the companies under the study.
5. Financial strength: The proportion of long-term liabilities to the total liabilities, current liabilities to total liabilities and current assets to total assets were at fluctuating trend during the whole period of the study in all companies. Liquidity position was assessed by calculating quick ratio. The quick ratio indicated that the liquidity position in Madras Rubber Factory and Dunlop India was not very satisfactory as compared to other companies.
6. Value added: A study of the common-size valued added statement of all the tyre companies under the study revealed that more than 99 percent to the total revenues was generated from the revenue from sales of goods. The proportion of goods- bought-in to total sales revenue marked a fluctuating trend. On an average, it was near to 50 percent in all the companies under

the study. The proportion of value added to total sales fluctuated in all the companies during the entire period of the study.

Quazi H.A. study (1984) concerned a study with the technological dimension of industrialization in Bangladesh. It involved a case study of the development of two industries, both based on chemical technology and chemical engineering-the production of chemical fertilizers and paper. The study examined the levels and trends of production efficiency in the three fertilizer plants and three paper mills in Bangladesh.

Fertilizer plants: The analysis of capacity utilization showed that none of the plants was operating close to the design level. The range of average overall capacity utilization rates was between 34 and 76 percent and obviously if one adjusted for the probable conservative basis for defining full capacity these figures would be lower. The pattern for stream-day capacity utilization was similar to that overall capacity utilization. The analysis of labour productivity showed similar patterns to those of the other performance indicators. In summary, the overall performance of the Bangladesh fertilizer industry during the 1970s, as measured by indicators, did not demonstrate dynamic patterns of improvement over time.

Paper Mills: Analysis of average overall capacity utilization rates in the post-war period showed that none of the mills was operating close to the design levels: the range varied between the mills from about 38 percent to 70 percent. There were trends of improvement through this period, but in two of the mills these were non-

significant .In none of the cases, including that with a significant improvement trend, did the rate of capacity utilization reach the design level by the end of the eight year post-war period. For none of the mills was there a significant improvement trend in stream day's capacity utilization in the post-war period. The analysis of labour productivity showed similar patters to capacity utilization. However, the conclusions which can be drawn from this are limited. As in the case of fertilizer industry, changes in labour productivity are determined very largely by changes in the levels of output.

Gupta M. (1979) evaluated the relative performance of the different sectors in fertilizer industry in India and to identify the sources of differences in the performance. The period of the study was from 1969-70 to 1976-77. Performance was evaluated in terms of four different measures, namely capacity utilization, profitability, productivity and the structure of operating costs. Though comparison related to all the four sectors, the emphasis was on the public and the private sectors as those two sectors together accounted for most of the output in the industry. The study covered all the chemical fertilizer plants manufacturing nitrogenous and complex fertilizers. The following were findings during the period of study.

1. Capacity utilization: Inter-sectoral comparison of capacity utilization indicated lower level of performance for the public sector in relation to the private sector in all the years. Of the total difference in capacity utilization between the private and the public sector, the maximum differences were

caused by frequent plant break-down and processing problems in old obsolete units in the public sector.

2. Profitability: The average rate of return on gross capital stock at replacement value worked out to 11.4 percent for the private sector and 14.4 percent for the joint and co-operative sectors as against a return of 1.8 percent for the public sector. Net profits were negative for the public sector. A study of over-time changes in profit performance revealed year to year fluctuation. On an average, there was a relative decline in profits in the public vis-à-vis the private sector.
3. Productivity: Both the public and the private sectors showed a decline in total factor productivity over time. The decline was, however less for the public sector, indicating thereby a relative improvement in its performance. Productivity of labour as well as of capital was also much lower in the public sector. Estimates of Cobb-Douglas function also revealed a lower productivity for the public sector.

Agrawal N.K. (1976) examined the industry practice in working capital management and to evaluate management performance in certain selected Indian industries. To attain the objective, 34 companies belongs to Iron Steel, Cement, Chemical Fertilizers, Acids, Motor vehicles, Tyres and Tubes, Batteries, Medical, Breweries and Whole Sale Trade were selected. The study covered eight years from 1966-67 to 1973-74. The study found that the majority of industries failed to plan their working capital requirement properly. They were unable to control liquid resources. The overall management of cash was not

efficient. Most of the executives did not in favour of investment in marketable securities. They considered it was speculative activity not meant for manufactures. The majority of industries had a lax collection policy. The actual collection period exceeded the average credit period in all the industries except Batteries. All most all the industries had over stocking, particularly of raw materials. In most of the cases, it was deliberate. All this clearly showed that there existed ample scope for the improvement in the management of working capital. It was, of course, difficult to outline the suggestions and recommendation on the activities of companies in several diverse industry groups. It, however venture to gave the following suggestions which in his view, would be result in the improvement of efficiency of working capital management in firms/industries in general.

- a. Proper planning of working capital.
- b. Need in many industries of exercising effective control over cash flow.
- c. Need of improving collection operation.
- d. Review of inventory levels at specified shorter intervals would be a great help in effective inventory control.

2.5.3 Study on Performance of Enterprises in the Nepalese Context

A study carried out by National Productivity and Economic Development Centre (NPEDC), Kathmandu (2005) stated that Nepal's productivity level and economic growth rate are among the lowest in the region. Studies show that

despite low wages as an important competitive advantage of Nepal, this has been significantly offset by low labour productivity in the economy. The labour productivity growth rate, although positive at the national level, increased by only 1.2 percent yearly on average in the past decade. By aggregate sector, labour productivity in the agriculture sector increased by 1.7 percent and in the service sector by 0.2 percent, while the industry sector showed a negative growth of -8.7 percent for the period 1993-94 to 2002-03. Productivity growth performance showed some improvement in 2002-03 compared to the previous year. The business environment showed signs of revival with the respite from domestic disturbances by insurgents because of an eight months cease-fire from January to August 2003. In 2002-03, labour productivity growth at national level improved to 0.7 percent compared with a 1.5 percent decline in the previous year. Labour productivity growth in agriculture was estimated at 1.9 percent, somewhat lower than in the previous year (2.2 percent). The service-sector productivity growth increased meagrely after a decline of 3.0 percent in 2001-02. Labour productivity in industry was estimated to have fallen by 7.6 percent, although the rate of decline improved compared to the decline of 11.7 percent in the previous year.

Shrestha P.P. (2004) performed a study of selected privatised public enterprises of Nepal that included five privatised public enterprises covering twelve years from 1988 to 2000 being 5 to 6 years before privatisation and 6 to 7 years after privatisation. The main objective of the study was to examine the economic and financial performance of the selected public enterprises before and after privatisation. The study found that as an average none of the privatised

public enterprises has been operating to its full capacity before and after privatisation. The average total productivity ratio and total average productivity index were found to be decreased for all selected privatised enterprises after privatisation. However, the pooled regression of labour productivity on capacity utilization shows negative relationship for selected privatised public enterprises before privatisation and positive relationship of labour productivity on capacity utilization after privatisation. The study revealed the selected privatised public enterprises could not improve their liquidity position after privatisation. The study of solvency position showed the dependency of the selected enterprises on outsiders firms to finance their total funds after privatisation seemed to decrease. The study of the turnover ratio computed showed an unsatisfactory performance of management in the utilization of assets. Similarly, the study found that the privatised public enterprises could not achieve satisfactory return after privatisation. The study concluded that the financial resources invested in assets have not been utilised properly by the selected enterprises after privatisation. This study has employed regression analysis technique to observe the significant relationship between the dependent variables and independent variables as well as it has used Cobb-Douglas production function model to measure the relationship between output and explanatory variables (capital and labour). In using of Cobb-Douglas production function estimates, the study found that the public enterprises before privatization were operating under returns to scale whereas after privatization, they found under increasing returns to scale.

Chaudhary D. N. (2003) conducted a study on financial appraisal of public and private sector. For inter-sector comparison study, Janakpur Cigarette Factory Ltd from public sector and Surya Tobacco Company Pvt. Ltd. from private sector were selected to covering ten years from 1990-91 to 1999-2000. The main objectives of the study was an insight into the comparative financial appraisal of the selected tobacco companies of Nepal in the public and private sector by making inter-sector analysis of some aspects of their financial management. For this purpose, the study employed techniques of time series analysis, inter-sector firm comparison, statistical tools like mean, standard deviation, coefficient of correlation, regression analysis, besides, the null hypothesis was tested by using student's t-test etc. In the study, it was found that growth trend of working capital and sales of Private Sector Tobacco Company were much higher as compared to Public Sector Tobacco Company. In efficiency of working capital, the private sector company was more efficient in managing its inventory, receivables, cash and overall current assets than the public sector company. With regard to liquidity, the private sector company was more serious than that of the public sector company. The study resisted that the private sector was more efficient in the growth of its fixed assets with sales than the public sector.

In comparison of Public sector tobacco company was seemed efficient than the private sector tobacco company. A comparative study of the size of equity and debt of both public and private sector revealed that both companies have maintained more or less same size of equity and debt. During the period of

study, the private sector was seemed more efficient in utilizing its capital resources than the public sector. A study of the profitability ratio on sales of public company was showed dismal due to poor sales performance and high operating costs where as this profit was much higher for private company. Similar observations were found in the study of profitability on investment of both sectors. A study of funds flow analysis revealed that private sector company maintained relatively a large size of funds from operation that that of public sector company. Public Sector Company had no growth rate of funds from operation due to heavy losses. Loans and borrowings were the main sources of funds for both companies. The application of funds of both companies was found only in an acquisition of fixed assets.

Shrestha M.B. (2003) analysed the working capital management of cement industries of Nepal. To attain the objective, the study include two major cement industries namely Hetauda Cement Industries Ltd. and Udaypur Cement Industries Ltd. covering eight years from 1993-94 to 2000-01. The study revealed that the performance of the cement industries was not encouraging on the basis of profit criterion. Low current assets turnover, imprudent management responsible for the losses, not increased in sale as increased in inventory, excessive working capital due to high level of inventory, negative net working capital were major findings of his study. Besides, the liquidity position of cement industries as indicated by decreasing trend of current ration and low quick ratio was not seen sound. During the period of study he employed statistical tools such as mean, coefficient of variation, multi-regression etc.

A study of NPEDC (2003) showed that productivity measurement practices have been seen in PEs in Nepal to some extent, but how far the results have been used in the decision making process of such enterprises is unknown. The then Ministry of Finance of HMG Nepal has been regularly publishing facts and figures relating to the country's PEs. These cover their financial position, physical target and their achievement, financial performance, cash flow between the Government and PEs and investment in shares and loans to the PEs. The productivity-related indices calculated are the asset turnover ratio, overall profitability percentage, labour productivity, and employee productivity. The asset turnover ratio has been calculated as the ratio between total operating revenue/sales revenue and net fixed assets. Overall profitability has been calculated using the ratio between operating profit/loss and net capital employed. Labour productivity and employee productivity are calculated separately. Employee productivity is the ratio between the total quantity of production/total operating income and the number of employees.

Productivity measurement practices in private enterprises in Nepal could be said to be almost non-existent. The term productivity itself is a newcomer for most of these enterprises, and only a very few large industrial companies have some awareness about productivity improvement. Therefore, it is necessary to create awareness of productivity improvement so as to promote the development and application of productivity measurement in private enterprises in Nepal. NPEDC has made a concerted effort in this regard and has previously measured productivity in some private enterprises producing textiles, rice plastic containers,

wheat flour, baked goods and biscuits. In doing so it followed the APO's instructions regarding productivity measurement practices. The methodologies used were based on the Guidelines for Productivity measurement and Analysis for APO Member Countries published by APO in 1980, Labour productivity, capital productivity and TFP were all calculated. Unfortunately the enterprises concerned have not continued with the measurement for a number of reasons. Firstly, they lack the skilled manpower required. Secondly, awareness of the importance of productivity measurement and top management commitment are equally important for such continuation.

Mishra, S.N. (1998) conducted a study on Cement Industry in Nepal. The study was undertaken with the objective of evaluating the financial performance of the cement industry in Nepal especially measuring the profitability, examining the financial structure, analysing the fixed assets, assessing the working capital condition and analysing the sources and uses of funds of the industry. He selected three cement industries from the public sector of Nepal covering ten years from 1985-86 to 1994-95. He found very low non-operating income, low gross margin, higher operating ratio and negative net profit ratio which failed to show satisfactory overall efficiency of cement industry while measuring the profitability. In examining the financial structure, they found that the major source of financing and investment in the cement industry was borrowing. The study resisted increasing trend of debt and equity capital, decreasing trend of capital gearing ratio, increasing ratio of current liabilities to net worth, declining the proprietary ratio which showed poor financial position of the cement industries of

Nepal. The poor structure of fixed assets was found in his study because a definite policy for financing fixed assets was not applied. In assessing the working capital it was found that the speed of increase in the current liabilities was much faster as compared to that in the current assets which resulted in a sharp decrease in working capital. The study registered declining of current ratio and quick ratio below standard ratio 2:1 and 1:1 respectively. The study found in analysing the sources and uses of funds that the main sources of funds in cement industry were due to increase in noncurrent liabilities and main items of application in the industry were due to increase in fixed assets.

Pradhan R.S.(1986) performed a study on working capital management. In the study he selected nine manufacturing public enterprises covering ten years from 1973 to 1982. The main objective of the study was to examine the behaviour and management of working capital in manufacturing public enterprises in Nepal. To attain this objective, ratio analysis, discriminate analysis and econometric models were employed. He found almost selected enterprises in positive net working capital except in a few cases. In comparison of quick assets and current liabilities it revealed that the former were insufficient to cover current liabilities on many occasions. However, it was observed that current ratios were declining slowly over a period of time in the majority of selected enterprises. The study of the computed turnover ratio over a period of time showed an improvement in utilization of current assets by the majority of manufacturing public enterprises of Nepal. Similarly, an improvement in utilization of cash, receivables and inventories was revealed in the majority of the

selected enterprises. The presence of economies of scale was also observed for receivables, gross working capital and net working capital. The regression result also showed that the levels of working capital and its components on enterprise desire to hold depend not only on sales but on holding costs also.

Pradhan, R.S. (1984) found that there were under-utilised capacities in Nepalese enterprises despite of an increase in financial assistance by NIDC over time. The presence of such under-utilised capacities had to be recognised as a serious hindrance to the general development of industries. The average capacity utilization of all industries were low was found by him. During the study of industry wise capacity utilization, the sugar industry was found at 42 percent capacity utilization. Thus the under-utilization of capacities in Nepalese industries indicated scope for boosting industrial production without making large capital outlays. The problem of low capacity utilization was not only in private sector enterprises but also in public enterprises. Therefore, it was suggested by him for taken concrete action in the field of improving under-utilised capacities than emphasizing the expansion of existing industries by allocating more and more investment to them

Bajracharya and Shrestha (1983) carried out a study on management problem in public sector manufacturing enterprises in Nepal with the objective of identifying the problems. They found that the performance of manufacturing public enterprises in Nepal was generally poor as displayed by low productivity, low capacity utilization and low or negative return. The study indicates that there was no adequate understanding and realization of objective even among top and

middle level management. Profit followed by an organization growth and development has been prescribed but existing objectives were not adequate and clear. The appointment system of chief executive was not satisfactory. The study showed that appointment system was interfered politically and other causes. The major constraints in the attainment of the objectives were government policies, limitations of sources, environmental factor and management responsibility. In planning procedure of public enterprises, the great interference was perceived by HMG. Degree of Autonomy was very low in the view of various kinds of interference.

2.5.4 Study on Sugar Industry in the Nepalese Context

Shah (2002) conducted a study on the evaluation of performance of sugar industry in Nepal. The study included three sugar industries which were two from public sector and one from private sector namely Birgunj Sugar Factory, Lumbini Sugar Factory and Sriram Sugar Mills covering two years (1997-98 and 1998-99) only. The study evaluated the all related performance on the basis of financial ratios and funds flow analysis. During the period of the two years study, the researcher found that the operational and financial performance of those related sugar mills were far from satisfactory. Even, in analysing of the funds flow of those three selected sugar industries, it found that the funds from operation and changing in working capital in loss and decrease position respectively.

Bhagat (2008) found in the study that existing plant capacity of the Nepalese sugar mills is adequate to meet increasing demand for sugar in Nepal.

However, all Nepalese sugar operated below their production capacity, therefore, total production of sugar could not meet national demand. The reasons for under utilization of production capacity have been many such as stoppage, infrequent break-down, slow motion of machine, delay in supply of sugar cane due to non-settlement of minimum support price of sugarcane political unrest and ultimately the internal disinterestedness of sugar producers. The deficient supply of sugar has been fulfilled by imported as well as smuggled Indians and Chinese sugar. The smuggling of sugar has two fold negative impacts on Nepalese economy. First, Government losses revenue and second, Nepalese sugar as well as sugar cane growing farmers face problem in marketing their product/produce. Due to increase in number of medium and large automatic sugar mills, khandsari mills could not compete and most of them have closed their operations. The study was limited only to marketing of sugar as agro-based product in Nepal.

2.6 Summing Up

In summing up, 'performance appraisal' is a critical assessment of various activities in different areas of operation of an enterprise. The performance appraisal can be done through a careful and critical analysis of the financial statements of an enterprise. Financial statements are the means to present the operating results and financial state of a firm. Hence, on the basis of the analysis and interpretation of financial statements, an analyst can examine a firm's performance. The appraisal of performance is closely interrelated with the measurement of progress. It is concerned with the efficiency and effectiveness of an enterprise which is possible through the critical assessment of various

activities and operations performed by a business concern. The study highlights on capacity utilization, value added, productivity, liquidity, leverage, activity and profitability aspects which have been observed to measure and analyze the operational financial performance of the selected sugar mills of Nepal during the period.

Capacity utilization is a vital aspect of an enterprise. The progress of an economy is indicated not by how much it produces but how efficiently it produces. Value added is an important appraising measure to judge the operational performance of an enterprise. As value added becomes more widely used and understood in industry and commerce, it may begin to be used as general performance indicator. Value added is a basic and broad measure of the performance of an enterprise. In general, productivity means relationship between the output generated by a production or service system and the input provided to create this output. In other words, productivity means efficient use of input resources to obtain maximum output. The analysis of productivity is important in order to appraise the performance and the quality of social and economic policies at national and sector levels. It is important to determine the effectiveness and efficiency of an enterprise.

The review of earlier studies of sugar industries in other countries like in India showed that sugar industries still were facing the problems related to infrastructure, raw materials, production of sugarcane, labour, by-products storage and defective price policy in Uttar Pradesh. Lower position of liquidity

and solvency, declining in debt-equity, poor interest coverage, poor working capital management, fluctuating trend in capacity utilization and lower profit were found in most of sugar industries under study. On the other hand, no negative ratios were observed in relation to profitability as increasing trend in return of capital employed and return on assets in some industries. The previous studies of Nepalese sugar industries showed that these sugar industries had funds from operation in loss and changing in working capital in declining position. The deficit supply of sugar used to be fulfilled by imported sugar and smuggled Indian and Chinese sugar.

In reviewing other Indian industries, no indication of good performance were found in steel industries. In fertilizer companies, the performance was observed satisfactory except inventory management. Increasing and decreasing trend of profitability was noted in textile industries. The study of food processing industries showed low liquidity ratios and large portion of inventory. Similarly, in wagon and engineering industries of India, profit and loss account and increasing trend of value added generation were found to be unsatisfactory. But, the value added to sales revenue indicated a declining trend in steel companies. The proportion of cost of goods sold to sales on an average remained above 95 percent in all tyre companies. As a result, the operating profit was observed to be very low. In Bangladesh, the overall capacity utilization rates were between 34 to 76 percent in chemical and fertilizer industries and paper mills. Among the industrialized countries, U.S.A., Canada and Japan had much higher labour productivity during the mid 1980's. It was more than a hundred thousand dollars.

The level of labour productivity in India is one fifth of that of Denmark, Finland, Germany, U.K., Ireland and Australia. In context to Nepalese enterprise, the performance of tobacco companies, cement factories, jute mills and other manufacturing public enterprises were found to be very poor because of low productivity, low capacity utilization and low or negative return.

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the research design, population and sample nature and sources of data and techniques of appraisal. This chapter also describes various relevant variables and key terms of the study. .

3.1 Research Design

In this study, an attempt has been made to appraise the operations and financial conditions of the Nepalese sugar mills. It has, therefore, attempted to analyse different operations and financial aspects of 4 sugar mills under study. To analyse the performance of the sugar mills, demand and production, capacity utilization, value addition, productivity and financial indicators have been measured and examined. The study has also conducted a survey of the concerned stakeholders about various aspects of performance of the sugar industry. The research design adopted in this study is, therefore, primarily descriptive and correlational in nature.

3.2 Population and Sample

All the sugar mills established in the country form the population for the study. However, this study covers only those sugar mills which were established

before 2000 and in operation during the period between 2000-01 and 2007-08 for the availability of data and information. There are altogether twelve sugar mills established and running in the country as shown in Table 3.1.

Table: 3.1

Status of Established Sugar Mills in Nepal

S. No.	Name of Sugar Mills	Estd.	Status	Sector	Sample
1.	Morang Sugar Mill (MSM)	1946	Closed	Private	-
2.	Mahendra Sugar and General Industries (MSGI)	1960	Closed	Private	-
3.	Birgunj Sugar Factory Ltd. (BSF)	1964	Closed	Public	-
4.	Indu Shankar Chini Udyog (ISCU)	1984	Running	Private	Sample
5.	Lumbini Sugar Mills Ltd. (LSM)	1987	Closed	Public	-
6.	Shri Ram Sugar Mills Ltd. (SRSMI)	1994	Running	Private	Sample
7.	Mahalaxmi Sugar Mills Ltd.(MSM)	1994	Running	Private	
8.	Everest Sugar and Chemical Industries Ltd. (ESCI)	1995	Running	Private	Sample
9.	Eastern Sugar Mills Ltd. (ESM)	1998	Running	Private	Sample
10.	Basuling Sugar and General Industries (BSGI)	1998	Running	Private	
11.	Bagmati Khadsari Chini Udyog (BKCU)	1998	Running	Private	
12.	Mam Kaur Sugar and Chemical Industry	2005	Running	Private	

Source: Indu-Shankar Chini Udyog, *Nepal Ma Unnat Ukhu Kheti* (Developed Sugarcane Farming in Nepal), 2006

Of the twelve established sugar mills in different years, four sugar mills in the country have already been closed and eight sugar mills are operating at present. However, only seven sugar mills which are operating now are established before the year 2000 and thus of them four major sugar mills have been selected as sample which represent more than fifty percent of them. These four sugar mills are Indu Shankar Chini Udyog (ISCU), Shree Ram Sugar Mills (SRSM), Everest Sugar and Chemical Industries (ESCI), and Eastern Sugar Mills (ESM). Similarly, the period of study between 2000-2001 and 2007-2008 has been chosen because of the availability of data from the sugar mills under study.

Since the sugar mills under study have not got their financial statements audited as of now, operational and financial data of the sugar mills are not made available and hence recent data could not be used for the purpose of study.

A survey was conducted on the basis of questionnaire of the stakeholders of the sugar industry to seek their opinions on various aspects of performance of Nepalese sugar mills. The directors, general managers, managers, cane officers, departmental heads and other officials, sugarcane farmers, managers of biscuits, confectionary and fruits processing distilleries industries, sugar dealers and importers and government and none-governmental officials have been the respondents. The number of total respondents chosen for the study has been shown in Table 3.2

Table: 3.2

Sample Respondents

Stakeholders	No. of Respondents
Direct Stakeholders (Directors, general managers, managers, cane officers, departmental heads and other officials)	80
Indirect Stakeholders (Sugar cane farmers – 40, managers of confectionary, cookies, fruits processing and distilleries – 20, sugar importers and dealers -10 and Government and none Government officials - 10)	80
Total Respondents	160

3.3 Nature and Sources of Data

This study is based on both primary and secondary data. The data related to the variables for the performance analyses were collected from the annual reports which contain profit and loss account and balance sheet of the selected sugar mills. Official records of concerned industries and sugar mills' association were also the main sources for secondary data. The national data were collected from published economic survey and statistical book of Central Bureau Statistics

In addition, the study has also utilized primary data in the areas where secondary data were not available or they have been inconclusive. Such data have been collected from office records and files of these mills. Primary data from management and employees has also been collected to support performance appraisal.

A survey based on questionnaire was conducted to collect opinions of stakeholders. The questionnaires used were open in nature including overall comments and suggestions regarding the performance of sugar mills in Nepal. A total of 160 questionnaires were distributed 80 each to direct stakeholders and indirect stakeholders.

Thus, altogether 160 questionnaires, 80 each to direct stakeholders and indirect stakeholder respondents were distributed and obtained for qualitative analysis. The field survey of this study was therefore based on visits to

respective direct stakeholders and indirect stakeholders respondents located in different places of the country.

3.4 Methods of Analysis

The data obtained from different sources have been processed and sorted out in condensed forms. Therefore, they have been tabulated and presented as per the requirement of the study.

In order to achieve the purpose of the study, the analysis has been made descriptive. In the descriptive analysis, techniques of time-series analysis, inter-firm comparisons of the selected operational and financial ratios and their trend percentage have been used. To make the analysis conclusive, the study has also used statistical tools such as mean values, coefficient of variance and regression analysis.

To measure the performance of the selected sugar mills of Nepal, this study has been divided into two areas namely operational performance appraisal and financial performance appraisal. In operational performance appraisal of the sugar mill under study, the area of demand and production, capacity utilization, value added and productivity have been observed where as the area of liquidity, leverage, activity and profitability have been looked under financial performance.

The methods of analysis employed in this study are described in the following sections.

3.4.1 Operational Performance Analysis

The analysis of operational performance of a firm is observed with the following ratios.

i. Capacity utilization: - This ratio is computed by dividing the average quintal of sugar cane crushing per day by installed crushing capacity per day. It observes that how far a firm has been able to use its installed capacity. The capacity utilization can be computed as:

$$CU = QT/QTC \times 100$$

Where,

CU = Rate or ratio of capacity utilization in percentage

QT = Average sugar cane crushing per day in quintals

QTC= Full capacity of crushing per day in quintals (installed capacity)

(ii) Value added ratio: - In this ratio, the proportion of value added to sales revenue is determined. It is established by dividing the value added by sales revenue. It observes that how far a firm has been able to generate the value added.

$$\text{Value added ratio} = \text{Value Added} / \text{Sales Revenue} \times 100$$

iii. Productivity: The following ratios are determined to measure the productivity of a firm.

1. Capital productivity: Capital productivity has been observed in two following ratios.

First, Capital productivity ratio: This ratio is computed by dividing the value added by total assets. It observes the efficiency of total assets in generating the value added. It also measures that to how far extent a firm has been able to use the total assets.

$$\text{Capital productivity ratio} = \text{Value added} / \text{Total assets} \times 100$$

Second, Capital productivity ratio: This capital productivity ratio measures the efficiency of fixed assets in its utilization in a firm to produce output or to generate value added. It is found out by dividing the value added with fixed assets.

$$\text{Capital productivity ratio} = \text{Value added} / \text{Fixed assets} \times 100$$

2. Labour productivity ratio establishes a relation between valued added and wages which measures whether the labour force has been efficiently used or not in generating the value added. It is calculated by dividing the value added by wages.

$$\text{Labour productivity ratio} = \text{Value added} / \text{Wages} \times 100$$

3. Total productivity ratio: This ratio measures the total productivity of a firm. It shows that how far a firm has been able to use its total assets and wages to generating value added or to produce output. Total productivity ratio is derived by dividing the value added with total assets plus wages.

$$\text{Total productivity} = \text{Value added} / \text{Total assets plus wages} \times 100$$

iv. Regression Analysis:

Labour productivity is a function of capacity utilisation and assets utilisation. To establish the relationship of labour productivity with capacity

utilisation and asset utilisation the labour productivity has been regressed on capacity utilisation and assets utilisation. For this, the following regression equation has been estimated:-

$$LP = a_0 + a_1 + CU + a_2 TAT + U_1 \dots\dots\dots$$

Where,

LP = Labour Productivity

CU = Capacity Utilisation

TAT = Total Assets Turnover

U_1 = error term

3.4.2 Financial Performance Measurement

For the analysis of the financial performance of selected sugar industries, altogether the following fifteen financial ratios of four major groups and two regression equations to estimate the relationship of various financial variables depending upon the available data have been employed.

i. Liquidity Group:

Liquidity ratio shows the short-term solvency of the firm. The following ratios have been calculated under this category:

(1) Current ratio (CR)

The ratio of current assets to current liabilities is called current ratio. It is found by dividing the current assets by current liabilities.

This ratio is the relationship between quick assets and current liabilities. It is found out by dividing the total of the quick assets by total current liabilities.

ii. Leverage/Solvency group

The following ratios measure the solvency of the selected sugar mills under study:

a. Proprietary Ratio:

Proprietary ratio is computed by dividing the shareholder's equity by the total assets. This ratio shows the size of equity to total assets of a firm.

b. Long Term Debt to Total Assets Ratio or Debt to Total Capital Ratio:

This ratio also shows the size of long-term debts to total assets of a firm. It is determined by dividing the long-term debts by total assets.

This ratio reveals the relationship between long-term debt and owner's equity. It indicates the position of long-term debt in composition of capital structure of a firm.

c. Interest coverage ratio:

In this ratio, it is observed that how many times in a Year, a firm can pay the interest to the borrowers. It is calculated by dividing the net profit before tax plus interest by total interest.

iii. Activity or turnover ratios:

This ratio highlights upon the activity of the firm. The following ratios have been calculated under this category

a. Inventory turnover ratio

It is the number of times obtained by dividing sales by closing inventory. It indicates as how many times the inventory rotates in a Year. This ratio highlights upon the efficiency.

b. Receivables turnover ratio

The receivables turnover ratio indicates that the number of times the receivables rotate in a year in term of sales. It is calculated by dividing total sales by total receivables at ending the year.

c. Current assets turnover ratio

With the help of this ratio the overall efficiency of current assets can be measured. It indicates the number of times of total current assets which rotate in a year in sales term. It is computed by dividing total sales by total current assets.

d. Fixed Assets turnover ratio

It is the number of times obtained by dividing sales by total fixed assets. It also indicates as how many times the total fixed assets rotate in a period. It is taken to measure the activity of the firm.

e. Total Assets Turnover Ratio

This ratio shows the ability of the sugar industries in generating sales from all financial resources committed to total sales. It is computed by dividing sales by total assets.

iv. Profitability Ratios:

The related computed profitability ratios are mentioned below:

a. Operating Profit Ratio:

This ratio is computed by dividing the operating profit by sales. It indicates the operational efficiency of management

b. Net Profit Margin Ratio:

This ratio establishes a relationship between net profit and sales. It is calculated by the dividing the net profit after tax by sales. The overall efficiency can be measured with this ratio.

c. Return on Assets:

This ratio is found out by dividing the operating profit by operating assets. It established a relationship between operating profit and operating assets. It measures the productivity of the assets.

d. Return on owner's equity:

This ratio reveals the relationship between net profit after tax and shareholder's equity. It is computed by dividing the net profit after tax by owner's equity. It judges the income from shareholder's point of view.

3.4.3 Inter-Firm Comparison (IFC)

Inter-firm comparison means several firms in the same industry may appraise their respective performances in the context of what others as a whole have achieved. This type comparative analysis has come to be known as inter-firm comparison.

The main purpose of IFC is to show each firm its position relative to other firms within the industry. This is a better way of judging the relative strength and efficiency of a firm than the attempt to do so by analysis made internally on a year to year basis. Such a study may throw light on significant inefficiencies in a firm, which may lead to further detailed analysis, through financial ratios and other internal analysis, thus helping the management to take remedial action.

In present study, therefore, the technique of inter-firm comparison has been used for making the study of the performance appraisal of the selected sugar mills of Nepal.

3.4.4 Regression Analysis

Shrestha (2004) explains that to assess the relationship of liquidity with the solvency, operating efficiency and activity; liquidity ratios (i.e. quick ratio or current ratio) have been regressed with debt to total capital ratio, sales and profitability ratio. The regression equation to establish this relationship to be estimated has been specified as follows:

$$CR = a_0 + a_1DTCR + a_2 TAT + a_3 NPM+ u_1.....(i)$$

Where,

CR = Current Ratios (dependent variable)

DTCR = Debt to Total Capital Ratio

TAT = Total Asserts Turnover

NPM = Net Profit Margin

U1 = error term

$$QR = a_0 + a_1DTCR + a_2 TAT + a_3 NPM+ u_1.....(ii)$$

Where,

Where,

QR = Quick Ratios (dependent variable)

DTCR = Debt to Total Capital Ratio

TAT = Total Asserts Turnover

NPM = Net Profit Margin

U1 = error term

Similarly, to analyse the relationship of operating results with liquidity, leverage and activity of selected sugar industries operating results have been regressed with liquidity, leverage and activity. The regression equation to be estimated has been specified as

$$\text{NPM} = b_0 + b_1\text{CR} + b_2\text{DTCR} + b_3\text{TAT} + u_1 \dots \dots \dots \text{(iii)}$$

Where,

NPM = Net Profit Margin (dependent variable)

CR = Current Ratio

DTCR = Debt to Total Capital Ratio

TAT = Total Assets Turnover Ratio

U1 + error term

3.5 Survey Study

Since a part of study is based on survey, one set of questionnaire has been developed and was distributed to respondents. The respondents are classified as direct stakeholders and indirect stakeholders. The direct stakeholders comprised the directors, managing directors, managers, officials and employees of the concerned sugar mills and indirect stakeholders who comprise sugarcane farmers, food processors and confectioners, sugar dealers and importers, government and non-government officials for analysing the differences in their opinion with respect to major aspects of performance of the

selected sugar mills of Nepal. The data collected have been suitably classified, tabulated and analysed with the help of statistical tools. Similarly, the response of each choice in the question, where choices were to be ranked, is weighted arithmetic mean was calculated to find out the overall rank for each choice for the direct stakeholders and indirect stakeholders as respondents. The chi-square test has been employed in the study to assess whether the difference in the opinions of the direct and indirect stakeholder respondents as the major aspects of performance of the sugar industries of Nepal is significant.

3.6 Limitations of the Study

The following are the limitations of the study:

1. This study is limited to only sugar mills and Khadsari Udyog are not under the purview of the study.
2. Since the sugar mills under study are in the auditing process from fiscal year 2008-09 and the auditing is not yet completed, the data of the concerned sugar mills have been used in the study only for the period between fiscal year 2000-01 and 2007-08. However, the other data have been used from the fiscal year 2000-01 to 2009-10.
3. The study is based on both primary and secondary data. Therefore, the data and information obtained from the annual financial statements and office records of the selected sugar industries were assumed to be correct.

CHAPTER -IV

APPRAISAL OF OPERATIONAL PERFORMANCE

The aim of this chapter is to measure and compare the operational performance of the selected sugar mills of Nepal. For this purpose, demand and supply, production contribution, capacity utilization, value added and productivity aspects of Nepalese sugar mills have been taken into consideration.

An appraisal is an evaluation of operational performance aspect of management that is concerned with assessment of operational efficiency of an enterprise. It is a process of synthesising and summarizing data with a view to get an insight into the operative activities of a business enterprise. Therefore, one can learn a lot about performance of an enterprise through an appraisal of its operational activities.

4.1 Demand for and Supply of Sugar

The demand for sugar has been increasing with the population growth in Nepal. A conservative estimate of the annual consumption of sugar is 6 kg per head in the country (Bhagat, 2008).

This section has observed that how far the Nepalese sugar industry has been able to meet the domestic demand for sugar.

Table 4.1 shows the estimated demand, actual production and percentage of deficit supply of sugar during fiscal year 2000-01 to 2009-10.

Table 4.1
Annual Estimated Demand, Actual Production of Sugar and Percentage of Deficit Supply of Sugar in Nepal during 2000-01 to 2009-10
(In M.T.)

Year	Population	Annual Estimated Demand of Sugar @ 6 Kg per head	Annual Actual Production of sugar	Deficit of supply (Percentage)
2000-01	2,31,51,423	1,38,909	63,374	54.38
2001-02	2,37,01,451	1,42,209	91992	35.31
2002-03	2,42,49,996	1,45,410	94,052	35.32
2003-04	2,47,97,059	1,48,782	96,174	35.35
2004-05	2,53,42,638	1,52,056	98,436	35.26
2005-06	2,58,86,736	1,55,320	98,461	36.61
2006-07	2,64,27,399	1,58,564	94,052	40.69
2007-08	2,69,66,581	1,61,799	96,174	40.56
2008-09	2,75,04,280	1,65,026	1,08,605	34.19
2009-10	2,80,43,744	1,68,262	1,09,650	34.83

Source: Central Bureau of Statistics (2011) and Economic Survey 2011

It is evident from the Table 4.1 that there was a mostly decreasing trend in deficit in supply of sugar from 2000-01 to 2009-10. In 2000-01, the total population of Nepal was 2, 31, 51,423 and estimated national demand for sugar was 138,909 tons @ 6 kg per head average annual consumption. All sugar mills of Nepal have been operating below the capacity level. They produced only 63, 374 MT sugar in fiscal year 2000-01 which was 54.38 percent less than national demand. Short supply of sugar was partially fulfilled by imported and smuggled sugar.

In 2001-02, the deficit supply of sugar decreased to 35.31 percent which indicated that the total sugar production had increased as compared to last

year's production. The deficit supply of sugar increased from 35.32 percent in 2002-03 to 46.69 percent in 2006-07 except 2004-05 In that year the deficit supply had slightly decreased to 35.26 percent due to increase in the total production of sugar. The deficit in the supply of sugar used to be partially fulfilled by imported sugar. The deficit supply of sugar was recorded 40.56 percent, 34.19 percent and 34.83 percent in 2007-08, 2008-09 and 2009-10 respectively.

Besides imported sugar, the deficit in the supply of sugar was fulfilled by smuggled sugar particularly in bordering towns and villages to India, 1,880 kilometres long Indo-Nepal border is open and people can easily cross the border without passport and visa. This situation has created a problem for Nepalese sugar industry as Indian sugar is cheaper than the sugar produced in Nepal.

4.2 Contribution of Nepalese Sugar Mills in Total National Production of Sugar

Sugarcane is the main raw material to be used in the sugar mills. Nepal has favourable climate for the production of sugarcane. Most of sugar mills are situated in sugar growing areas. After the establishment of modern sugar mills, most of the *Khadsari* mills are almost closed down because they could not compete with them. In this section, the contribution of the four selected sugar mills has been observed that how far they have been able to contribute to the total annual national production of sugar.

Table 4.2 reveals the total annual domestic production of sugar and contribution of the selected sugar mills from the period 2000-01 to 2009-010.

Table 4.2 Landscape

In fiscal year 2000-01, the total annual production of Nepal was 63,374 MT in which the total contribution of four selected sugar mills remained 90.25 percent. Individually, Sri Ram Sugar Mills (SRSM) was the highest (27.63 percent) in the total production of sugar. Indu-Shakar Chini Udyog (ISCU) occupied (27.03 percent). Similarly, Everest Sugar and Chemical Industries (ESCI) and Eastern Sugar Mills (ESM) contributed 22.11 percent and 13.47 percent respectively.

The total production of sugar increased to 91, 992 MT in fiscal year 2001-02 which was 45.16 percent greater than the production of previous year. The total contribution of the selected sugar mill was 98.25 percent which was registered as the highest contribution in national production of sugar during the period of study. Separately, ISCU had the highest contribution (29.89 percent) in total production of Nepal. ESCI occupied second contributing industry (28.67 percent). Similarly, SRSM and ESM contributed 28.67 percent and 13.91 percent respectively.

Out of the total national production of sugar 94, 052 MT in fiscal year 2002-03, ISCU maintained the similar highest contribution (25.46 percent) where ESM gave the lowest contribution (16.64 percent). SRSM and ESCI both had mostly more than 21 percent contribution. In that year, the total contribution of Nepalese selected sugar mills was 85.27 percent which was less 11.28 percent as comparison of last year.

In 2003-04, the total production of sugar increased to 96,174 MT in which the contribution from the sugar mills under study was 90. 54%. ISCU registered

the highest contribution (28.69 percent) and followed by ESCI (25.23 percent), SRSM (19.97 percent) and ESM (16.65 percent).

In fiscal year 2004-05, the all selected sugar industries had contributed (97.95 percent) in total domestic production of sugar 98,436 MT. Individually, ISCU maintained the record of highest contribution (30.98 percent) as it maintained during last previous years of the study. ESCI had contribution of 27.92 percent whereas SRSM and ESM both had more than 19 percent contribution.

The contribution of ISCU in total internal sugar production was continuously increasing. It had highest contribution (31.23 percent) in 2005-06. SRSM occupied second position while ESCI and ESM occupied third and fourth position respectively. The total production of sugar had been 98, 461 MT in that year in which the selected sugar mills contributed 96.37 percent.

In 2006-07, the total production of sugar suddenly decreased to 94, 052 MT which was less 4.48 percent as comparison to last year's production. In spite of that, ISCU had 31.26 percent contribution which was highest not only in 2006-07 even its contribution was recorded as a top contributor as comparison of all yeas of the study. ESCI had 30.36 percent contribution whereas ESM and SRSM had 18.44 percent and 17.35 percent contribution respectively. In this year, all the four selected sugar mills contributed 97.41 percent share in total domestic production of sugar.

The total annual production of sugar in fiscal year 2007-08 increased to 96,174 MT but the contribution of the selected sugar mills decreased to 65.70 percent as comparison of last years of the study. Individually, ISCU and ESCI had better contribution (22.67 percent) and (20.72 percent) respectively. ESM had 15.61 percent contribution whereas the contribution of SRSM was recorded very poor 6.70 percent only.

In fiscal year 2008-09 and 2009-10, the total production of sugar in Nepal was 1,08,605 MT and 1,09,650 MT respectively. The contribution of those selected sugar industries (ISCU, SRSM, ESCI and ESM) in that couple of years were 63.26 percent and 67.59 percent respectively. In 2008-09, ISCU occupied first position by contributing 21.74 percent where as ESCI occupied second position 20.74 percent. Similarly, ESCI occupied first position in 2009-10 by contributing 23.74 percent whereas ISCU was registered to second position 23.27 percent. ESM and SRSM remained in third and fourth position by contributing in total national production of sugar in both years 2008-09 and 2009-10 respectively.

During the study period from 2000-01 to 2009-10, the contribution of ISCU was maximum in total production of sugar. Its contribution varied between 21.74 to 31.26 percent. The average contribution of this industry was recorded 27.22 percent during the period of study as the highest contributor among the four selected sugar industries.

The contribution of ESCI fluctuated from 20.72 to 30.36 percent during 2000-01 to 2009-10. It gave average contribution 24.89 percent and secured second position.

Obviously, SRSM maintained third position by giving average contribution 17.60 percent in total domestic production of sugar. Its contribution varied from 27.63 percent in 2000-01 to 6.70 percent in 2007-08. It was observed that its contribution started to decrease since first year of the study.

As far as ESM is concerned, its contribution was recorded as fluctuating trend from 10.53 percent to 19.06 percent. In total contribution of the four selected sugar mills ESM obtained fourth position by giving average contribution 15.55 percent during the study period.

The total contribution of aforementioned selected sugar industries during 2000-01 to 2009-10 varied from 90.24 percent in 2000-01 to 63.26 percent in 2007-08. Their contribution in total production of sugar was recorded very poor in last three years of the study from 2007-08 to 2009-10 whereas from 2000-01 to 2006-07 their contribution was better.

4.3 Capacity Utilization Appraisal

This section deals with the time-series analysis to observe the trend of capacity utilization of the sugar mills under study. It also deals with inter-firm comparison to observe the operational efficiency of the selected sugar mills under study of Nepal.

The capacity utilization is used as a device to measure the operational performance of the selected sugar industries of Nepal during 2000-01 and 2007-08. The installed capacity i.e. sugarcane crushing per day of respective selected sugar mills of Nepal are given. It measures the operational efficiency as to how far the selected sugar mills are able to use the installed capacity. The maximum utilization of installed capacity will increase the volume of output. In present study, the comparative average capacity utilization of selected sugar mills of Nepal during the period 2000-01 to 2007-08 has been shown in Table 4.3.

Table: 4.3
Comparative Sugarcane Crushing Capacity Utilization of the
Selected Sugar Mills of Nepal during 2000-01 to 2007-08

Year	Indushankar Chini Udyog			Sriram Sugar Industries					
	Installed crushing capacity per day (in Qntls)	Sugarcane Crushed(in Qntls)	Average capacity utilization	Installed crushing capacity per day (in Qntls)	Sugarcane Crushed(in Qntls)	Average capacity utilization			
2000-01	10,000	15,73,200	105.58%	30,000	16,23,154	45.08%			
2001-02	10,000	9,96,805	107.18%	30,000	15,11,000	43.05%			
2002-03	10,000	12,54,198	124.18%	30,000	14,98,339	47.12%			
2003-04	22,500	23,14,556	68.13%	30,000	27,95,955	58.99%			
2004-05	22,500	19,88,977	77.54%	30,000	20,41,612	57.67%			
2005-06	22,500	18,28,828	85.56%	30,000	19,17,259	62.05%			
2006-07	22,500	31,07,643	95.25%	30,000	27,96,169	60.92%			
2007-08	22,500	25,13,392	88.66%	30,000	21,63,208	62.70%			
Mean			94.01%			56.07%			
Year	Everest Sugar and Chemical Industries			Eastern Sugar Mills					
	Installed crushing capacity per day (in Qntls)	Sugarcane Crushed(in Qntls)	Average capacity utilization	Installed crushing capacity per day (in Qntls)	Sugarcane Crushed(in Qntls)	Average capacity utilization			
2000-01	30,000	12,26,942	35.56%	25,000	9,20,508	40.91%			
2001-02	30,000	12,71,700	44.62%	25,000	8,90,760	37.51%			
2002-03	30,000	16,22,040	51.49%	25,000	8,90,906	39.16%			
2003-04	30,000	26,01,103	62.38%	25,000	16,90,177	52.41%			
2004-05	30,000	16,48,171	52.83%	25,000	10,80,953	55.43%			
2005-06	30,000	15,11,772	63.79%	25,000	9,10,451	56.03%			
2006-07	30,000	29,27,792	71.76%	25,000	13,61,313	54.45%			
2007-08	30,000	22,54,921	65.36%	25,000	16,61,748	54.93%			
Mean			55.97%			48.85%			
Year	Total Average Combined Capacity Utilization of Four Selected Sugar Mills								Mean
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	
Capacity utilization	56.78 %	58.09 %	54.52 %	65.49 %	60.48 %	66.86 %	70.60 %	67.91 %	66,53 %

Source: Appendix 3.1 and 3.2

It is evident from the Table 4.3 that the combined average of capacity utilization of the selected sugar mills of Nepal showed an increasing trend during the eight years of the study from 56.78 percent to 70.60 percent, except in 2004-05 and 2007-08. It averaged at 66.53 percent.

It has been observed from Table 4.3 that the sugar mills under study were unable to use full installed capacity. They could not crush sugarcane as installed capacity due to the short supply of sugarcanes. However, they were able to use their installed capacity by more than 66 percent during the study period. However, Pradhan's study (1984) found that the sugar industry was operating with 42 percent of its production capacity

With respect to individual sugar mills, in ISCU, the Table 4.3 showed the capacity utilization in increasing trend, more than installed capacity, during the first three Years from the lowest 105.58 percent in 2000-01 to the highest 124.18 percent in 2002-03. During this period, the crushing capacity of sugarcane of the mill was 10,000 quintals per day. From 2003-04, the crushing capacity was extended to 22,500 quintals per day. Again, the table reflects that the capacity utilization of ISCU was in increasing trend from 68.13 percent in 2003-04 to 95.25 percent in 2006-07, except in 2007-08. The averaging out during the period was 94.01 percent. The table reveals that the average of capacity utilization of ISCU was more than combined average. ISCU seemed to perform better because it had been able to utilize its installed capacity to its maximum.

In SRSM, the Table 4.3 showed the capacity utilization during 2000-01 and 2007-08. The capacity utilization was at increasing trend during the first three years of the study from the lowest 43.05 percent in 2001-02 to the highest 58.99 percent in 2003-04 and was in fluctuating trend during the last four years of the study. It varied between the highest 62.70 percent in 2007-08 and the lowest 57.67 percent in 2004-05. Its averaging out during the period was at 56.07 percent. It can be observed that the fluctuation of the crushing capacity was due to increase or decrease in availability of raw materials in the respective years. However, the mill had been able to use its installed capacity by more than 56 percent during the period of study.

In ESCI, the capacity utilization showed an increasing trend during the period of the study from the lowest 35.56 percent in 2000-01 to the highest 71.76 percent in 2006-07, except in 2004-05 and 2007-08, when it was 52.83 percent and 65.36 percent respectively, resulting in an average of 55.97 percent. It can be observed that increasing trend was encouraging but performance seemed worse because this mill could hardly use its capacity by more than 60 percent approximately.

In the case of ESM, the Table 4.3 showed an increasing trend of capital utilization during the first five years of the study from the lowest 37.51 percent in 2001-02 to the highest 56.03 percent in 2005-06. The trend of utilization decreased to 54.45 percent in 2006-07. It increased to 54.93 percent in 2007-08

again. The average of the capacity utilization during the period of the study was at 48.85 percent. The table showed that ESM was able to use the installed capacity by more than 48 percent.

On comparing the utilization of capacity of the selected sugar mills of Nepal, ISCU seemed to perform better followed by SRSM, ESCI and ESM respectively.

4.4 Value Added Appraisal

Value added is taken as an important measurement tool for appraisal of the operational performance of an enterprise. It observes how far an enterprise has been able to meet the social obligations. Therefore, an attempt has been made for an appraisal and comparison of the value added in between the selected sugar mills of Nepal. This part of appraisal deals with the time-series analysis to observe the trend of the proportion of value added to sales revenue of selected sugar mills of Nepal.

It considers inter-firm comparison also to observe the trend of the proportion of value added which will help to measure the operational performance of the sugar mills selected for study. The proportion of net value added to sales revenue has been derived by deducting the bought-in of sugar cane and depreciation from total sales revenue. The figure of sales revenue has been taken as hundred and percentage of net value added generation side has been calculated. To make the operational performance appraisal, the proportion

of net value added to sales revenue has been computed and presented in table 8.7.

Table 4.4 presents the proportion of net value added to sales revenue of the selected sugar mills of Nepal during 2000-01 and 2007-08

Table: 4.4
Proportion of Net Value Added Generation to Sales Revenues of the Selected Sugar Mills of Nepal during 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined
	Value Added	Value Added	Value Added	Value Added	Average Value Added
2000-01	44.05	21.20	22.62	40.56	30.44
2001-02	50.83	38.32	40.07	55.30	42.11
2002-03	42.76	32.57	30.76	62.70	35.22
2003-04	4.24	1.93	14.95	-11.43	4.14
2004-05	53.13	44.88	25.08	33.48	41.61
2005-06	45.39	31.68	30.68	26.11	34.72
2006-07	-7.34	10.08	4.04	28.86	7.62
2007-08	52.70	39.63	30.97	21.45	39.30
Mean	35.72	27.54	24.90	26.86	29.40
C.V.	61.63	51.45	41.98	80.83	47.87

All values are in percentage and Source: Appendix 2.1 to 2.4

It is evident from Table 4.4 that the combined proportion of net value added to sales of the selected sugar mills of Nepal had a fluctuating trend during eight years of study. It varied between the highest 41.61 percent in 2004-05 and the lowest 4.14 percent in 2003-04 resulting in average of 29.40 along with 47.87 percent coefficient of variation. In 2003-04 and 2006-07, the proportion of value

added was much low as compared to other years of the study. The reason for this low proportion of value added showed the higher bought-in of raw materials. In 2004-05 and 2007-08, the proportion of net value added suddenly jumped to 41.61 percent and 39.30 percent respectively as compared to the previous year. It was mainly due to bonanza sale in those particular years. It can be said that the selected sugar mills had not been able to give a proper trend for the value added generation overall.

With respect to individual sugar mills, in ISCU, the proportion of net value added to sales showed an indefinite trend registering the highest 52.70 percent in 2007-08 and the lowest -7.34 percent in 2006-07. In 2003-04, the proportion of value added was too little. It was due to higher purchasing of raw materials and lower sales. In 2006-07, sugar mill recorded negative net value added (-7.34 percent), which was mainly due to higher bought-in of raw materials. The sugar mill was not able to raise the sale that year. However, the management raised its performance by increasing the sales in the Year 2005-06 and 2007-08 that raised the value added to 53.13 percent and 52.70 percent respectively. The averaging out during the period was 35.72 percent along with 61.63 percent statistical variation. It observed that the average of the proportion of the net value added of the mill was higher than the combined average of the selected sugar mills of Nepal during the study period, which showed its better operational performance.

In SRSM, a similar trend was shown of the proportion of net value added, recording the highest 44.88 percent in 2004-05 and the lowest 1.93 percent in 2003-04 resulting in an average of 27.54 percent along with coefficient of variation of 51.45 percent. In 2003-04, the proportion of net value added was too low as compared to its previous year's proportion. The main reason for this expressed the higher bought-in of raw material. In 2004-05, the proportion increased to 44.88 percent as compared to its previous Year 2003-04 when it was at 1.93 percent only. The sudden increase in the proportion of value added was due to increase in sales volume. However, the performance of the mills seemed better to generate value added from time to time.

In ESCI, during the first four years of the study, the proportion of net value added had a falling trend from 22.62 percent in 2000-01 to 14.95 percent in 2003-04, except in 2001-02 when it was at 40.07 percent. On the other hand, the proportion showed a rising trend during the last four years of the study from the lowest 25.08 percent in 2004-05 to the highest 30.97 percent in 2007-08, except in 2006-07, when it was 4.04 percent. In 2006-07, the proportion of the value added to sales was too much low as compared to its other year's proportion of the study. It was due to higher bought-in of raw materials. The averaging of the proportion during the period was 24.90 percent along with 41.98 percent coefficient of variation.

In case of ESM the proportion of the net value added to sales had a very uncertain trend in span of eight years of the study from 2000-01 to 2007-08. The proportion ranged between the highest 62.70 percent in 2002-03 and the lowest -

11.43 percent in 2003-04. In 2003-04, the proportion of value added was negative due to higher bought-in of raw material and lower sales revenue. The averaging out of the proportion during the period was 26.86 percent along with 80.83 percent coefficient of variation.

A comparative study of the proportion of net value added generation to sales reveals that in a span of eight years (2000-01 to 2007-08) ISCU had a better performance followed by SRSM, ESM, and ESCI respectively.

4.5 Productivity Appraisal

In this section, the time-series analysis and inter-firm comparison of capital productivity ratio, labour productivity ratio and total productivity ratio measuring the operational performance in between the selected sugar mills of Nepal have been analyzed.

To measure the operational efficiency of the selected sugar mills of Nepal, the partial productivity, i.e., capital productivity and labour productivity as well as total productivity have been computed based on financial statements. Where productivity indices cannot be obtained directly, financial ratios can be used (Prokopenko, 1999).

For this purpose, Prokopenko (1999) computed the primary productivity ratio (Given in Research Methodology Chapter) to determine the trends for company performance appraisal.

Different methods for computing the productivity have been proposed for analysing the performance of the enterprise. Those methods have been taken in this study. Value added has been used to derive the productivity ratios. The value added is that proportion of sales revenue, which is related to every step used in the process of production.

Prokopenko (1999) calculated value added by deducting bought-in of raw materials, work services and depreciation from sales revenue. Therefore, value added has been more justifiable to compute the productivity ratio. The researcher has followed the same method to compute the productivity ratios for the study.

4.5.1 Capital Productivity

The capital productivity ratio has been computed by two methods i.e. value added to total assets and value added to fixed assets. In both methods, the capital productivity ratio shows the relationship between value added and total assets as well as value added and fixed assets. The increasing trend of the ratio indicates the better utilization of total assets and fixed assets and vice-versa. Therefore, for analysing and interpreting, the computed productivity ratios of the selected sugar mills of Nepal from both methods have been presented in table 4.5 and 4.6 during the period 2000-01 and 2007-08. Besides this to facilitate comparison, mean, combined mean of ratio have been computed and presented in respective table.

Table 4.5 deals the capital productivity ratio (value added to total assets) of the selected sugar mills of Nepal during 2000-01 and 2007-08.

Table: 4.5
Comparative Capital Productivity (Based on Net Total Assets) of the
Selected Sugar Mills of Nepal during 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined
	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Average Productivity Ratio Times
2000-01	0.55	0.06	0.08	0.07	0.13
2001-02	0.54	0.16	0.20	0.07	0.22
2002-03	0.39	0.13	0.19	0.08	0.16
2003-04	0.02	0.01	0.09	-0.03	0.02
2004-05	0.68	0.27	0.12	0.09	0.24
2005-06	0.51	0.15	0.16	0.05	0.16
2006-07	-0.05	0.04	0.02	0.08	0.03
2007-08	0.96	0.21	0.21	0.06	0.25
Mean	0.45	0.13	0.13	0.05	0.15
C.V.%	68.77	63.77	46.28	73.17	53.88

Source: Appendix 1.1 to 1.4

It is vivid from Table 4.5 that the combined average of the capital productivity ratio i.e. value added to total assets showed a fluctuating trend during the period recording the highest ratio 0.25 in 2007-08 and the lowest 0.02 in 2003-04 resulting in an average of 0.15 ratio along with a wide coefficient of variation of 53.88 percent. In 2004-05 and 2007-08, during the period, the ratio

suddenly increased to 0.24 and 0.25 as compared to their previous year's ratio. It was mainly due to efficient utilization of total assets. The capital productivity ratio of the selected sugar mills under study during first seven years of the study did not seem courageous but their performance increased in last year of the study.

With respect to individual sugar mills, ISCU registered a decreasing trend of the capital productivity ratio during the first four years of the study from the highest 0.55 times in 2000-01 to the lowest 0.02 in 2003-04. On the other hand, during the last four years of the study, the ratio was at increasing trend from 0.68 in 2004-05 to 0.96 in 2007-08, except in 2005-06 and 2006-07 when it was at 0.51 and -0.05 times respectively. In 2003-04, the ratio was too low (0.02) and the ratio was even negative (-0.05) in 2006-07. The main reason for these unfavourable ratios was inefficient utilization of total assets during the process of output. In 2004-05 and 2007-08, the sugar mill had increased its operational efficiency by efficient utilization of total assets resulting in an increase in the ratio to 0.68 and 0.96 respectively. However, the average of the ratios during the period was 0.45 times along with 68.77 percent coefficient of variation, which was more than the combined average of the ratio. Thus, the performance of ISCU seemed better.

In SRSM, the capital productivity ratio (value added to total assets) showed an indefinite trend during the period of the study, which ranged between the highest 0.27 in 2004-05 and the lowest 0.01 in 2003-04 resulting in an average of 0.13 times along with 63.77 percent coefficient of variation. In 2004-05 and 2007-

08, the ratio showed better performance of the mill as compared to its other years of the study.

In ESCI, the capital productivity ratio showed a falling trend during the first four years of the study. On the other hand, the ratio showed a rising trend during the last four years of the study, except in 2006-07, when the ratio decreased to 0.02. The averaging out of the capital productivity ratio during the period was 0.13 times along with 46.28 percent coefficient of variation.

In case of ESM, the capital productivity ratio showed an uncertain trend during 2000-01 and 2007-08 recording the highest 0.09 in 2004-05 and lowest - 0.03 in 2003-04 resulting in an average of 0.05 along with wide variation of 73.17 percent. The negative ratio of the productivity in that year had been due to improper utilization of total assets.

Comparatively, ISCU had the highest average of capital productivity ratio (value added to total assets) followed by ESCI, SRSM and ESM respectively.

Table 4.6 considers the total productivity ratio (value added to fixed assets) of the selected sugar mills of Nepal during 2000-01 and 2007-08.

Table: 4.6
Comparative Capital Productivity (Based on Net Fixed Assets) of the
Selected Sugar Mills of Nepal during 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Productivity Ratio Times
	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	
2000-01	1.41	0.07	0.10	0.12	0.18
2001-02	1.03	0.19	0.26	0.09	0.29
2002-03	0.72	0.16	0.25	0.09	0.19
2003-04	0.05	0.01	0.13	-0.04	0.03
2004-05	1.36	0.34	0.18	0.12	0.33
2005-06	1.08	0.19	0.23	0.07	0.24
2006-07	-0.16	0.06	0.04	0.13	0.06
2007-08	2.33	0.28	0.34	0.10	0.39
Mean	0.98	0.16	0.19	0.08	0.21
C.V.%	76.08	63.96	47.57	71.97	55.68

Source: Appendix 1.1 to 1.4

Table 4.6 has shown that the combined average capital productivity ratio of the selected sugar mills of Nepal showed fluctuating trend during the period of study, which varied between the highest 0.33 in 2004-05 and the lowest 0.03 in 2003-04 resulting in an average of 0.21 along with coefficient of variation of 55.68 percent. In 2003-04 and 2006-07, the ratios were very disappointing. It was mainly due to poor utilization of fixed assets. As a result, the ratios decreased to 0.03 and 0.06 percent respectively in those years as compared to the previous years

With respect to individual sugar mills, in ISCU, the capital productivity ratio showed a downward trend during the first four years of the study from the highest 1.41 in 2000-01 to the lowest 0.05 in 2003-04. On the other hand, during the last four years of the study, the ratio showed an upward trend from the lowest 1.36 in 2004-05 to the highest 2.33 in 2007-08 except in 2005-06 and 2006-07 when the ratio was at 1.08 and -0.16 respectively. In 2006-07, the value added itself was negative, which resulted in negative capital productivity ratio. It was due to inefficient utilization of fixed assets. The average of the capital productivity ratio during the period was 0.98 percent along with a wide variation of 76.08 percent. This shows that as compared to first four years of the study ISCU performed better in the last four years of the study.

In SRSM, the capital productivity ratio showed an indefinite trend during the period overall registering the highest 0.34 in 2004-05 and the lowest 0.01 in 2003-04 resulting in an average of 0.16 ratio along with coefficient of variation of 63.96 percent. In 2004-05 and 2007-08, the sugar mill has increased its operational efficiency increasing the ratio to 0.34 and 0.28 times respectively as compared to the previous year's ratio. The main reason for increasing the productivity ratio was efficient utilization of fixed assets.

In ESCI, the capital productivity ratio showed a rising trend during the period overall from the lowest 0.10 in 2000-01 to the highest 0.34 in 2007-08, except in 2002-03, 2003-04 and 2006-07 when the ratio decreased to 0.25, 0.13 and 0.04 times respectively due to less utilization of fixed assets. The averaging out of the

ratio during the period had been 0.19 percent along with 47.57 percent coefficient of variation.

The capital productivity ratio in ESM fluctuated every year during 2000-01 and 2007-08. It ranged between the highest 0.13 in 2006-07 and the lowest -0.04 in 2003-04. It was negative (-0.04) in 2003-04 because the mill could not use the fixed assets efficiently. However, the average of the ratio during the period was 0.08 along with wide variation of 73.17 percent.

In comparison, it may be said that ISCU seemed to perform better as it had highest average of the capital productivity followed by ESCI, SRSM and ESM respectively.

4.5.2 Labour Productivity

Another popular productivity ratio, which measures the operational performance of an enterprise, is labour productivity. This ratio reveals the relationship between value added and wages. The labour productivity ratio of the selected sugar mills of Nepal has been computed by value added to wages and presented in Table 4.7 during 2000-01 and 2007-08. For comprehensive study, mean, combined average and coefficient of variance of ratio have also been computed and presented in the same table.

Table: 4-7
Comparative Labour Productivity of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Average
	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times
2000-01	12.94	5.03	4.80	12.56	7.56
2001-02	12.16	11.20	8.30	11.90	10.33
2002-03	11.15	10.07	6.40	13.28	9.26
2003-04	0.94	0.54	3.25	-0.03	1.00
2004-05	23.54	21.76	4.83	9.08	13.86
2005-06	18.10	11.45	7.70	5.93	10.84
2006-07	-2.25	3.32	1.04	9.05	2.27
2007-08	28.56	15.43	7.19	5.86	13.57
Mean	13.14	9.85	5.44	7.20	8.58
C.V.%	74.23	65.21	42.23	56.62	52.03

Source: Appendix 2.1 to 2.4

It is evident from the table (Table 4.7) that the combined labour productivity ratio of the selected sugar mills showed a fluctuating trend during the eight years of the study recording the highest 13.86 in 2004-05 and the lowest 1.00 times in 2003-04 resulting in an average of 8.58 along with 52.03 percent coefficient of variation.. It can be observed that in 2003-04 and 2006-07, the labour productivity ratios were too low at 1.00 and 2.27 respectively as compared to their other year's ratio. It is clear that in those particular years, the labour was not utilized properly by the selected sugar mills. However, in 2001-02, 2004-05 and 2007-08, the operational performance of the selected sugar mills of Nepal

increased raising the labour productivity ratio to 10.33, 13.86 and 13.57 times respectively as compared to the previous year's ratio.

With respect to individual sugar mill, in ISCU, the labour productivity ratio showed a decreasing trend during the first four years of study from the highest 12.94 in 2000-01 to the lowest 0.94 in 2003-04. Whereas during the last four years of study it showed an increasing trend from 23.54 in 2004-05 to 28.56 in 2007-08, except in 2005-06 and 2006-07, when the productivity ratio was at 18.10 and -2.25 times respectively. The increasing and decreasing trend of labour productivity ratio was due to similar trend in efficiency of the labour utilization. It can be said by study that the last four years of study period observed better performance than the first four years of study. The averaging out of the labour productivity ratio during the period was 13.14 along with wide variation of 74.23 percent. The average ratio during the period was more than the combined average ratio of the selected sugar mills taken together. Thus, ISCU seemed to perform better in utilizing the labour force.

In SRSM, the labour productivity ratio showed a rising trend during the period overall from the lowest 5.03 in 2000-01 to the highest 15.43 in 2003.04, except in 2002-03, 2003-04, 2004-05 and 2006-07 when it decreased due to inefficient utilization of labour force. The average of labour productivity during the study period was 9.85 along with coefficient of variation of 65.21 percent. However, in certain years during study period the trend of the labour productivity ratio appeared to be courageous.

The labour productivity ratio of ESCI showed an increasing trend during the period from the lowest 4.80 in 2000-01 to the highest 7.19 in 2007-08 except in 2002-03, 2003-04 and 2006-07, when it decreased to 6.40, 3.25 and 1.04 respectively resulting in an average of 5.44 along with 42.23 percent coefficient of variation. The study has observed that increasing trend of the ratio during the period rose up the efficiency in labour performance and its productivity.

In case of ESM, the ratio of labour productivity showed a fluctuating trend at every year during the period of study in 2002-03 and 2007-08. It varied between the highest 13.28 in 2002-03 and the lowest -0.03 in 2003-04. The averaging out during the period was 7.20 along with 56.62 percent statistical variation. In 2003-04, the ratio was negative (-0.03) which was due to inefficient utilization of labour force.

A comparative study of the labour productivity ratio of the sugar mills under study revealed that ISCU had the highest labour productivity ratio followed by SRSM, ESM and ESCI respectively. ISCU was, therefore, more efficient in utilizing its labour force than other sugar mills selected for study.

4.5.3 Total Productivity Ratio

Total productivity ratio measures the overall efficiency of the operational performance of an enterprise. Here, the total productivity ratio has been computed from the value added divided by wages plus total assets as shown in financial statement of an enterprise. This ratio reveals the relationship between the value added and total input i.e. wages and total assets. To make the study

comprehensive, the computed total productivity ratio of the selected sugar mills of Nepal has been presented in table 4.8 during 2000-01 and 2007-08. From this table, the trend of the ratio has been observed with the help of time-series analysis. Besides it, average, and combined average, of the ratio have been also computed and presented in the same table.

Table: 4.8
Comparative Total Productivity Ratio of the Selected Sugar Mills of Nepal during 2000-01 and 2007- 08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average
	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times	Productivity Ratio Times
2000-01	0.53	0.06	0.07	0.08	0.13
2001-02	0.51	0.16	0.20	0.08	0.21
2002-03	0.38	0.13	0.18	0.08	0.15
2003-04	0.02	0.01	0.09	-0.03	0.02
2004-05	0.66	0.27	0.12	0.09	0.23
2005-06	0.50	0.15	0.16	0.05	0.16
2006-07	-0.05	0.05	0.02	0.08	0.03
2007-08	0.93	0.22	0.20	0.06	0.25
Mean	0.44	0.13	0.13	0.05	0.15
C.V.%	68.89	63.79	46.13	73.06	53.83

Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

It may be seen from the table that the combined total productivity ratio of the selected sugar mills taken together showed a fluctuating trend overall which varied between the highest 0.25 in 2007-08 and the lowest 0.02 in 2003-04 resulting in an average of 0.15 along with coefficient of variation of 53.83 percent.

In 2003-04 and 2005-06, the total productivity ratios were very poor at 0.02 and 0.03 respectively as compared to other year's ratio. However, in 2004-05 and 2007-08, the selected sugar mills increased their efficiency of operational performance raising the ratio to 0.23 and 0.25 as compared to their previous year's ratio.

With regard to individual sugar mills, in ISCU, the total productivity ratio sharply declined during the first four years of the study from the highest 0.53 in 2000-01 to the lowest 0.02 in 2003-04. Nevertheless, during the last four years of the study, the ratio showed a rising trend from the lowest 0.66 in 2004-05 to the highest 0.93 in 2007-08, except in 2005-06 and 2006-07 when the ratio decreased to 0.50 and -0.05 respectively. In 2006-07, the ratio was found negative. The main reason behind this was inefficient utilization of total assets and labour force. Comparatively, in a span of eight years of study, the last four years of the study observed better performance than the first four years of study. However, the average of the total productivity ratio during the period was 0.44 along with 68.89 percent statistical variation, which was more than the combined average of selected sugar mills taken together. Therefore, it can be said that ISCU has maintained its overall efficiency during the period.

In SRSM, the total productivity ratio showed an uncertain trend during the period overall, which registered between the highest 0.27 in 2004-05 and the lowest 0.01 in 2003-04. Its averaging was at 0.13 times along with a wide variation of 63.79 percent. The sugar mill increased its operational efficiency particularly in 2004-05 and 2007-08 when total productivity ratio increased to

0.27 and 0.22 respectively as compared to its previous year's ratios. In those particular years, it seemed efficient utilization of total assets and labours.

In relation to ESCI, the total productivity ratio rose up throughout the year. During the period of study, it was lowest from 0.07 in 2000-01 to the highest 0.20 in 2007-08, except in 2002-03, 2003-04 and 2006-07, when it was 0.18, 0.09 and 0.02 respectively resulting in an average of 0.13 ratio along with coefficient of variation of 46.13 percent. It can be observed that operational performance of the sugar mills seemed to perform better in 2007-08 as compared to its previous year's performance during the period.

In ESM, the ratio of productivity fluctuated every year during 2000-01 and 2007-08. The ratio varied between the highest 0.09 in 2004-05 and the lowest - 0.03 percent in 2003-04. The average of total productivity during eight years of study was 0.05 along with wide variation of 73.06 percent.

In comparison, ISCU was only found to be efficient in total productivity ratio followed by ESCI, SRSM and ESM respectively.

4.6 Regression Analysis

This part attempts to examine the relationship between the following specified dependent and independent variables to observe the performance of the selected sugar mills of Nepal during 2000-01 to 2007-08.

4.6.1 Regression of Productivity on Capacity Utilisation and Assets Utilization

Labour productivity and capacity utilisation are closely related. A review of empirical works (Shrestha, 2004) show this relationship in which capacity utilisation is an explanatory variable while estimating the relationship of labour productivity on capacity utilization and find the positive relationship between capacity utilisation and labour productivity. Sumanth (1984) also states that capacity utilisation, which is the percent of time plants are in operation, and labour productivity are closely related. In this part of analysis, labour productivity (dependent variable) has been regressed on capacity utilisation and total assets turnover of the selected sugar mills to observe their significant relationship during the period 2000-01 and 2007-08.

Table: 4.9

Regression of Labour Productivity (Dependent Variable) on Capacity Utilisation and Total Assets Turnover of the Selected Sugar Mills during the Period 2000-01 to 2007-08

Regression	ISCU	SRSM	ESCI	ESM	Combined Average
Constant	-844.40	251.25	695.46	2748.66	1036.71
Capacity Utilisation	-5.62	-55.03	-15.85	-36.77	-35.58
Total Assets Turnover	24.76**	84.13*	13.69	-4.63	35.39***
Adj R ²	0.81	0.85	-.04	0.28	0.74
df	7	7	7	7	7
F-Ratio	16.04***	20.06**	0.85	2.337	11.07

Note: * Significant at 1 % level

** Significant at 5 % level

*** Significant at 10 % Level

Source: Appendix 1.1 to 1.4, 2.1 to 2.4 and 3

Table 4.9 presents the regression result of labour productivity measures on capacity utilisation and total assets turnover of the selected sugar mills under study. It is observed from the table that the combined coefficient of capacity utilisation has been negative and insignificant. This result is in consistent with the study conducted by National Productivity and Economic Development Centre of Nepal (2005). On the other hand, the coefficient of total assets turnover has been positive at 10 percent level of significance. F-ratio shows overall insignificance of regression equation.

Individually, in ISCU, the coefficient of capacity utilisation is negative where as the coefficient of total assets is positive and it has been significant at 5 percent level. F-ratio shows also shows the significance of the regression equation at 10 percent level for fitness.

In SRSM, the table (Table 4.9) shows that the coefficient of capacity utilisation has been negative but the coefficient of total assets use has been positive at 1 percent of level of significance. F-ratio also explains the fitness of the regression equation at 5 percent level of significance.

In ESCI, the coefficient of capacity utilisation is negative and total assets turnover is positive but both have not significant. F-ratio also does not show the significance of the model.

In the case of ESM, the coefficients of both capacity utilisation and total assets use have been negative and insignificant. F-ratio also does not explain the fitness of this model.

In comparison of the R^2 of the selected sugar mills, SRSM has achieved the highest rate of R^2 between the variables.

4.7 Summing Up

To sum up, this chapter analyses the performance of the operational aspects of the selected sugar industries of Nepal in terms of demand and supply of sugar, contribution of the sugar mills in national production of sugar, sugarcane crushing capacity utilization, generation of value added and productivity of sugar industries.

After evaluation, the deficit supply of sugar was found in decreasing trend. Every year, the demand of sugar has increased as well as the production of the sugar also has increased due to which the percentage of deficit supply was found to fall down at 34.83 percent in last year of the study while it was at 54.38 percent in beginning year of the study. However, the supply of deficit sugar always relied on imported sugar. The contribution of the selected sugar mills in total national production of sugar was registered to 98.25 percent in 2001-02 which decreased to 63.26 percent in 2008-09 during the period of 10 years of the study. In comparison, the highest average contribution was recorded to 27.22 percent for Indushankar Chini Udyog among the four selected sugar industries. A

long gap was found between installed capacity and actual sugarcane crushed. The fluctuating trend in capacity utilization was observed. The combined average of capacity utilization of 4 selected sugar mills was noted to 66.33 percent in which Indushankar Chini Udyog had highest capacity utilization during the study period. With regard to generation of value added, all these 4 selected sugar mills had fluctuating trend in which Indushankar Chini Udyog had highest average value added 35.72% whereas Everest Sugar and Chemical Industries had lowest 24.90 percent. In overall, in 2003-04 and 2006-07, the proportion of value added was found to be too poor mainly due to low sale. In analysis of capital productivity (based on net total assets) was recorded very poor (1.77) in 2003-04 but the combined average capital productivity of the sugar mills during 8 years of the study remained at 15.10 percent. Similarly, the capital productivity (based on net fixed assets) was found to 2.56 percent in 2003-04. The fluctuating trend was found in labour productivity of the sugar mills. So far total productivity of the sugar industries is concerned, the combined average of the total productivity was found to 14.84 percent with fluctuating trend in 8 years of the study with highest productivity 24.58 percent in 2007-08 and lowest 1.74 percent in 2003-04. In overall, the productivity of the selected sugar mills was not found satisfactory. In the part of regression analysis between productivity and capacity utilisation and total assets turnover, the coefficient of combined average of capacity utilisation was found negative where as the coefficient of total assets use was found in negative.

CHAPTER V

APPRAISAL OF FINANCIAL PERFORMANCE

This chapter attempts to make an appraisal of important aspects of financial performance in term of liquidity, leverage, activity and profitability of the selected sugar mills of Nepal during 2000-01 to 2007-08. This part of appraisal deals with the technique time-series and inter-firm comparison.

5.1 Appraisal of Liquidity

Liquidity ratios are used to judge a firm's ability to meet short-term obligations. The enterprise must pay its short-term obligations when they are due. It will be technically insolvent otherwise. Its future will be sombre. Liquidity of an enterprise can be measured based on current and quick ratios, which express the precise relationship between current assets and current liabilities and liquid assets and current liabilities. For the manufacturing enterprise, a current ratio of 2:1 and a liquid ratio of 1:1 are considered appropriate for measuring the efficient liquidity management of the enterprise. With a view to inquire into the efficiency of liquidity management of the selected sugar mills of Nepal during the period of 2000-01 and 2007-08, their current and quick ratios have been calculated and present in the Tables 5.1 and 5.2.

5.1.1 Current Ratio

Current ratio is one of the most popularly used measures of liquidity. It measures the degree to which current assets can cover current liability. A higher current ratio indicates greater assurance of ability to pay current liability.

Table: 5.1
Current Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio Times
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	
2000-01	1.81	2.33	3.93	2.05	2.85
2001-02	1.59	4.80	3.60	3.16	2.68
2002-03	2.57	3.61	3.40	4.06	3.19
2003-04	1.11	0.68	1.54	1.71	1.03
2004-05	1.25	0.60	2.45	0.62	0.94
2005-06	1.36	0.65	2.05	0.50	0.86
2006-07	1.12	0.68	2.21	0.27	0.79
2007-08	1.26	0.50	3.67	0.83	0.99
Mean	1.51	1.73	2.86	1.33	1.67
C.V. In %	30.39	90.17	29.37	97.94	58.20

Source: Appendix 1.1 to 1.4

Table 5.1 reveals that the combined average of current ratio of the selected sugar mills of Nepal showed a declining trend throughout the year from the highest 3.19 times in 2002-03 to the lowest 0.79 times in 2006-07, except in 2000-01, 2001-02 and 2007-08, when it was 2.85 times, 2.68 times and 0.99

times respectively. It averaged 1.67 times with a coefficient variation of 58.20 percent. This trend of current ratio was due to the growing tendency of current liabilities.

In the case of ISCU, during the period, the ratio showed a fluctuating trend which varied from the highest 2.57 times in 2002-03 to the lowest 1.11 times in 2003-04, averaging out at 1.51 times with 30.39 percent coefficient of variation. The trend of current ratio was due to the increasing and decreasing tendency of current liabilities.

Similarly in SRSM, during the period, the ratio showed a fluctuating trend within the highest 4.80 times in 2001-02 and the lowest 0.50 times in 2007-08 averaging out at 1.73 times along with 90.17 percent coefficient of variation.

In the case of ESCI, during the period, the ratio showed a downward trend from the highest 3.93 times in 2000-01 to the lowest 1.54 times in 2003-04. Then onwards, it showed a fluctuating trend, which varied from the highest 3.67 times in 2007-08 to the lowest 2.05 times in 2005-06 in the last four years of study. The ratio averaged 2.86 times with 29.37 percent coefficient of variation..

In ESM, during the study period 2000-01 and 2007-08, throughout the year, the ratio showed declining trend from the highest 2.05 times in 2002-03 to the lowest 0.27 times in 2006-07, except in 2007-08 averaging out at 1.33 times with coefficient of variation of 97.74 percent.

On comparing the ratio of the sugar mills selected for the study, it may be assessed that although the liquidity measured by matching current assets and current liabilities was not up to the rule of thumb 2:1 in any of the enterprises, ESCI maintained the high short-term liquidity, followed by SRSM, ISCU and ESM.

5.1.2 Quick Ratio

Another measure of liquidity in an enterprise is quick or acid test ratio, which is more refined than the current ratio. It excludes inventory and prepaid as they are the less liquid forms of current assets. It indicates the degree to which quick assets such as receivables, cash and marketable securities can cover the current liabilities. Generally, a quick ratio of 1:1 is considered to represent a satisfactory current financial condition. A higher ratio indicates high assurance of ability to pay current liabilities.

Table 5.2 presents the quick ratios of the selected sugar mills of Nepal during the period 2000-01 and 2007-08.

Table: 5.2
Quick Ratio of the Selected Sugar Mills of Nepal
during 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio Times
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	
2000-01	1.28	0.36	1.13	.0.80	0.97
2001-02	0.86	1.55	1.13	0.73	1.06
2002-03	0.91	1.18	1.59	1.05	1.14
2003-04	0.17	0.14	0.57	0.25	0.27
2004-05	0.50	0.12	0.61	0.11	0.26
2005-06	0.57	0.12	0.48	0.07	0.23
2006-07	0.29	0.13	0.55	0.07	0.19
2007-08	0.37	0.13	0.79	0.17	0.20
Mean	0.62	0.47	0.86	0.29	0.54
C.V. In %	56.11	112.77	43.02	120.69	74.67

Source: Appendix 1.1 to 1.4

Table 5.2 reveals that the combined average quick ratio of the selected sugar mills of Nepal, during the period, showed a rising trend for the first three Years between the lowest 0.97 times in 2000-01 and the highest 1.14 times in 2002-03 as well as a falling trend from the highest 1.14 times in 2002-03 to the lowest 0.19 times in 2006-07, except in 2007-08. On aggregate, the combined averaging out was at 0.54 times along with overall coefficient variation of 74.67 percent which is below the standard of 1:1.

With respect to individual sugar mills, in ISCU, the ratio fluctuated every year between the highest 1.28 times in 2000-01 and the lowest 0.17 times in 2003-04. After that, the ratio showed an upward trend from the lowest 0.17 times in 2003-04 to the highest 0.57 times in 2005-06. It then showed a fluctuating trend in the last three years of the study period from the highest 0.57 times in 2005-06 to the lowest 0.37 times in 2007-08. The average ratio for the period was 0.62 times with a coefficient of variation of 56.11 percent which is less than the rule of thumb norm.

In SRSM, the trend of the ratio was in decreasing nature, which showed from the highest 1.55 times in 2001-02 to the lowest 0.12 times in 2005-06. A constant trend of ratio was registered in 2004-05 and 2005-06 with 0.12 times. In the last three Years, during the period, the ratio had been increased from the lowest 0.12 times in 2005-06 to the highest 0.13 times in 2007-08. Similarly, in 2006-07 and 2007-08, the ratio was constant with 0.13 times. It averaged 0.47 times along with wide coefficient of variation of 112.77. The ratio of the industry is not satisfactory because it is much less than half of the rule of thumb norm.

In ESCI, the table showed that the trend of ratio remained constant with neither increase nor decrease in the first two years during the period of study. The ratio showed a similar ratio of 1.13 times in both Years 2000-01 and 2001-02. In the last six years, during the period, the ratio had a fluctuating trend varying from the highest 1.59 times in 2002-03 and the lowest 0.48 times in 2005-06. The average ratio for the period has been 0.86 times with coefficient of

variation of 43.02 percent. The average of quick ratios was below according to normal standard.

In case of ESM, during the period in 2000-01 and 2007-08, the ratio showed a declining trend, on the whole, from the highest 1.05 times in 2002-03 to the lowest 0.07 times in 2006-07. In 2007-08, the ratio was increased to 0.79 times. It can be noted from table 5.2 that the ratio remained constant at 0.07 times for a couple of years in 2005-06 and 2006-07. Its averaging out was at 0.29 times with wide variation of 120.69 percent, which is too much below the normal standard of 1:1.

On comparing the quick ratios of the sugar industries selected for the study, it can be seen that their liquidity positions as reflected by the ratio are not up to the rule of thumb norm, the liquidity position of ESM was the worst, followed by SRSM, ISCU and ESCI.

5.2 Appraisal of Leverage

In this section, time-series analysis and inter-firm comparison of the selected ratios have been made measuring the leverage aspects in term proprietary ratio, long-term debt to total assets, debt-equity ratio and interest coverage ratio among the selected sugar mills of Nepal.

5.2.1 Proprietary Ratio/Equity and Debt Ratio

The size of equity and debt in an enterprise has to be balanced as far as possible. An increased use of debts affects the capital structure of an enterprise by increasing the risk and the cost of debt. A study of the size of equity and debt of the enterprise reveals the policy of management towards rising of finance for investing on its assets structure.

Table 5.3 exhibits the size of equity in terms of percentage to total assets. The ratio is called proprietary ratio, which shows the relationship between funds provided by the owners or proprietors of the enterprise and its total assets. It indicates that higher the ratio, larger would be the size of proprietor's funds invested in total assets or vice-versa.

Table: 5.3
Proprietary Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio
	Ratio	Ratio	Ratio	Ratio	
2000-01	39.11	26.44	21.11	26.23	26.32
2001-02	51.10	26.42	20.35	12.36	26.67
2002-03	50.58	22.88	18.23	10.12	25.97
2003-04	33.61	19.55	20.70	9.53	19.81
2004-05	39.64	24.22	18.82	8.97	20.28
2005-06	43.12	25.42	17.10	0.66	17.55
2006-07	28.12	20.47	17.67	-1.42	14.51
2007-08	42.59	22.65	24.96	10.27	21.35
Mean	40.98	23.51	19.87	9.51	21.56
C.V.	17.82	10.33	11.88	96.64	19.32

All values are in percentage and Source: Appendix 1.1 to 1.4

As is displayed in the Table: 5.3 that the combined average proprietary ratio of the selected sugar mills showed an indefinite trend which varied from the highest 26.67 percent in 2001-02 to the lowest 14.51 percent in 2006-07 resulting in an average of 21.56 percent along with the coefficient of variation of 19.32 percent. It can be observed that the investment in total assets of the selected sugar mills of Nepal as provided by their proprietors is more than 20 percent.

With respect to individual sugar mills of Nepal, in ISCU, the ratio of equity to total assets during the period of study showed an uncertain trend recording the highest 51.10 percent in 2001-02 and the lowest 28.12 percent in 2006-07. It

averaged at 40.98 percent with coefficient of variation of 17.82 percent. A sudden increase in the ratio can be observed in 2001-02 and 2002-03. It was due to increase in the equity of ISCU, whereas in 2006-07, the ratio suddenly fell down to 28.12 percent because of increase in total assets during the period. However, the ratio has showed that the contribution of the proprietors was more than 40 percent in composition of total assets during the period of study.

In SRSM, the proprietary ratio showed a downward trend during the first four years of the study from the highest 26.44 percent in 2000-01 to the lowest 19.55 percent in 2003-04 and then a fluctuating trend during the last four years of study registering the highest 25.42 percent in 2004-05 and the lowest 20.47 percent in 2006-07. Its averaging out was at 23.51 percent along with 10.33 percent coefficient of variation. It was observed that during the first four years of the study, the decreasing trend of the ratio was due to gradual increase in loss in those years whereas a fluctuating trend of ratio during the last four years of the study was due to the rise and fall in the size of loss of the sugar mills.

In ESCI, during the first six years of the study, the ratio of equity to total assets showed a decreasing trend from 21.11 percent in 2000-01 to 17.10 percent in 2005-06, and then it increased in 2006-07 and 2007-08 to 17.67 percent and 24.96 percent respectively. The average of this ratio was 19.87 percent along with 11.88 percent statistical variation. It has been observed that the continuing increase in loss during the period of the study was responsible for the downward trend of the ratio.

In the case of ESM, the proprietary ratio showed a falling trend throughout the year, except in 2007-08. In 2006-07, the ratio was negative due to loss of equity base of the industry. However, in last year of the study, the proprietary ratio rose to 10.27 percent in respect of increase in equity. The average of the ratio during the period was at 9.51 percent with coefficient of variation of 94.64 percent.

Comparatively, ISCU had maintained a higher equity position during the period followed by SRSM, ESCI and ESM.

5.2.2 Debt to Total Capital Ratio/Long Term Debt to Total Assets

This ratio is equivalent to the total debt to assets ratio this ratio measures the portion of the firm's assets invested by creditors. A low ratio represents security to creditors in extending credit and also to shareholders under adverse business conditions. A very low ratio can worry share holders as the company is not using debt to their best advantage, (Pandey, 2012).

Table 5.4 displays the ratio of long-term debt to total assets of the selected sugar mills during the period 2000-01 and 2007-08. The ratio reveals the size of long-term debt investment in the total assets. Thus, it indicates that higher size of ratio makes greater size of long-term debt employed to assets structure of the industry.

Table: 5.4
Long-term Debt to Total Capital Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio
	Ratio	Ratio	Ratio	Ratio	
2000-01	27.42	67.31	65.31	69.60	61.26
2001-02	18.85	69.55	65.46	68.34	59.22
2002-03	31.90	69.52	67.94	67.88	64.50
2003-04	19.17	43.72	59.12	66.23	49.90
2004-05	20.38	46.18	62.46	57.02	49.90
2005-06	18.29	44.52	61.61	53.31	48.03
2006-07	9.61	39.16	57.50	32.21	36.41
2007-08	10.92	37.32	57.36	47.40	42.30
Mean	19.57	52.16	62.10	54.00	51.44
C.V.	35.71	25.25	5.93	22.30	17.57

All values are in percentage and Source: Appendix 1.1 to 1.4

It is apparent from Table 5.4, the combined average size of long-term debt vis-à-vis total assets showed an uncertain trend during the first half of period registering the highest 64.26 percent in 2002-03 and the lowest 49.90 percent in 2003-04. It then showed a decreasing trend during the last half of the period recording the highest 49.90 percent in 2004-05 and the lowest 36.41 percent in 2006-07, except in 2007-08. The ratio averaged out at 51.44 percent along with coefficient of variation of 17.57 percent. The size of long-term debt in the selected sugar mills had been decreasing during the last four years of the study due to decreasing trend of long-term debt.

With respect to individual sugar mills, in ISCU, during the period, the ratio showed a fluctuating trend throughout the year, which varied between the highest 31.90 percent in 2002-03 and the lowest 9.61 percent in 2006-07, resulting in an average of 19.57 percent with 35.71 percent coefficient of variation..

In SRSM, the ratio showed a declining trend during the period from the highest 69.55 percent in 2001-02 to the lowest 37.32 percent in 2007-08. The average of the ratio was 52.16 percent with 25.25 percent statistical variation. It can be observed that the average of size of long-term debt was more than the combined average of sugar mills under study. The decreasing trend of the ratio during the period was due to gradual decrease in size of long-term debt of the mill.

In ESCI, the ratio of long-term debt to total assets showed an increasing trend during the first three years of the study registering the lowest 65.33 percent in 2000-01 and the highest 67.94 percent in 2002-03. It then showed a decreasing trend during the last five years of the study recording the highest 62.46 percent in 2004-05 and the lowest 57.36 percent in 2007-08, resulting in average of 62.10 percent with 5.93 percent coefficient of variation. It has been observed that the increasing and decreasing ratio during the period were due to similar trends in long-term debts and total assets of the sugar industry. The average ratio has showed that the investment in assets structure was financed more than 60 percent by long-term debts.

In the case of ESM, , the ratio of size showed a declining trend during 2002-01 and 2007-08 from the highest 69.60 percent in 2000-01 to the lowest 32.21 percent in 2006-07, except in 2007-08, averaging at 54 percent with 22.30 percent statistical variation.

In comparison, it may be maintained that ESCI had the largest size of long-term debt followed by ESM, SRSM and ISCU respectively.

5.2.3 Debt Equity Ratio

The capital that is composed from various sources refers to the capital structure of an enterprise. There may be appropriate or optimum capital structure. The appropriate capital structure is that combination of debt and equity in which the average cost of capital is low and the market value of the enterprise is high. There are various ratios in which debt-equity ratio is the most popular ratio that measures the composition of capital structure in the selected sugar mills of Nepal during the period of study.

Table 5.46 considers the debt-equity ratio of the selected sugar mills during the period 2000-01 and 2007-08. The debt equity ratio is a main tool for appraising the composition of capital structure of the enterprise that shows the relationship between its long-term debt and owner's equity. Mostly, a higher debt-equity ratio was preferred by the shareholders whereas a lower ratio by the creditors. However, a ratio of 2 to 1 debt-equity is considered normal.

It is obvious from the table that the combined average debt-equity ratio of the selected sugar mills showed a rising trend during the first four years of the study, then a falling trend in the last four years of study, resulting in an average of 2.36 times along with a coefficient variation of 7.22 percent. It can be observed that the management of the selected sugar mills consciously maintained a balanced capital structure during the period of study.

Table: 5.5
Debt-Equity Ratio of the Selected Sugar Mills of Nepal
during 2000-01 and 2007-08

Year	ISCU	SRSM	ESCI	ESM	Average Ratio
2000-01	0.70	2.55	3.09	3.56	2.33
2001-02	0.37	2.63	3.22	3.10	2.24
2002-03	0.63	3.04	3.73	2.59	2.48
2003-04	0.57	2.24	2.86	5.36	2.52
2004-05	0.51	1.91	3.32	6.36	2.46
2005-06	0.42	1.75	3.60	80.71	2.34
2006-07	0.34	1.91	3.25	-22.73	2.51
2007-08	0.26	1.67	2.30	4.62	1.98
Mean	0.48	2.21	3.17	12.82	2.36
C.V. In %	29.77	20.81	13.25	269.61	7.22

Source: Appendix 1.1 to 1.4

With regard to individual sugar industries, in ISCU, the debt-equity ratio showed a declining trend throughout the year during the period of study from the highest 0.70 times in 2000-01 to the lowest 0.26 times in 2007-08 at an average of 0.48 times along with 29.77 percent coefficient of variation.. It can be said that the falling trend of combination of debt and equity was due to decrease in long-

term debt. However, the average of debt-equity ratio was too much below the normal standard.

In SRSM, the debt-equity ratio showed an increasing trend during the first three years of the study and then decreasing trend during the last five years of the study resulting in average of 2.21 times along with 20.81 statistical variation. The appraisal can be made that the increasing and decreasing trends of the ratio were due to similar trend in debt capital of the sugar mill although the management of SRSM consciously maintained the balance of debt and equity.

In ESCI, the debt-equity ratio showed an upward trend during the first six years of the study that was due to increasing in borrowing of long-term debt. Again, it showed a downward trend during the last two years of the study. The downward trend of the ratio was due to increasing tendency in equity capital. The average of debt-equity ratio during the period was at 3.17 times with coefficient variation of 13.25 percent. It has been observed that the debt-equity ratio was higher than normal standard, which indicates inappropriate management of ESCI.

In the case of ESM, the debt-equity ratio showed a rising trend during the first four years of the study. The ratio of debt-equity suddenly jumped to 80.71 times in 2005-06, which was due to heavy loss in that particular year. In 2006-07, the combination of debt and equity has showed a negative ratio which incurred due to decrease in debt capital of the enterprise. During the last year of the study, the ratio showed positive 4.62 times which was due to borrowing of debt

again. The averaging out of debt-equity ratio during the period was at 12.82 times along with 249.61 percent coefficient of variation. The average ratio of debt equity is too much higher than normal standard 2:1, which creates more risk and cost for the management.

In comparison, the composition of debt and equity was managed to same extent satisfactorily by the management of ISCU followed by SRSM, ESCI and ESM respectively. In ESM, the excessive size of debt-equity ratio increased the cost of capital, which affects the profit aspect of the management.

5.2.4 Interest Coverage Ratio

The interest coverage ratio is another type of ratio, which indicates the efficiency of capital structure management of an enterprise. This ratio measures the debt-serving capacity of an enterprise by showing how many times the interest charges are covered by funds. It is suggested that higher the ratio greater would be the operating efficiency whereas a lower ratio indicates inefficient management of capital structure.

Table 5.50 reflects the interest coverage ratio of the selected sugar mills of Nepal during the period 2000-01 and 2007-08.

Table: 5.6
Interest Coverage Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	Average Ratio Times
2000-01	9.16	0.96	0.65	0.23	1.22
2001-02	6.29	0.73	0.75	0.20	0.93
2002-03	4.38	0.53	0.61	0.18	0.71
2003-04	2.34	0.77	0.96	-0.30	0.58
2004-05	2.99	1.40	0.46	0.10	0.86
2005-06	3.08	1.12	0.65	0.10	0.76
2006-07	1.86	0.43	1.03	0.39	0.68
2007-08	4.99	1.17	1.28	0.94	1.47
Mean	4.39	0.89	0.80	0.24	0.90
C.V. In %	51.77	34.83	31.25	158.33	31.34

Source: Appendix 1.1 to 1.4

It is apparent from Table 5.6 that the combined average interest coverage ratio of the selected sugar mills of Nepal showed a decreasing trend during the first four years of study, averaging out at 0.90 times along with coefficient of variation of 31.34 percent.. The ratio reveals that these mills of Nepal were at least able to pay interest charges out of their earnings although their interest coverage ratio was too much low during the period, except in 2000-01 and 2007-08.

With respect to individual sugar mills, in ISCU, the interest coverage ratio showed a declining trend during the first four years of study recording the highest

9.16 times in 2000-01 and the lowest 2.34 times in 2003-04. It then showed a rising trend during the last four years of the study recording the lowest 2.99 times in 2004-05 and the highest 4.99 times in 2007-08, except in 2006-07, when it was 1.86 times resulting in average of 4.39 times with coefficient of variation of 51.57 percent.. The average ratio reveals that the management of capital structure of ISCU had sufficient funds to pay the interest charges as its efficient utilization of funds.

In SRSM, the interest coverage ratio showed a fluctuating trend during the period. It varied between the highest 1.40 times in 2004-05 and the lowest 0.43 times in 2006-07 averaging at 0.89 times along with coefficient of variation of 34.83 percent. The average ratio of interest coverage during the period indicated that the management of capital structure of company was able to pay its interest charges.

In ESCI, the interest coverage ratio showed a fluctuating trend during the first five years of the study registering the highest 0.96 times in 2003-04 and the lowest 0.46 times in 2004-05 and then showed an increasing trend during the last three years of the study resulting in an average of 0.80 times with 31.25 percent statistical variation.. The average ratio exhibited during the period that the management of capital structure of enterprise was efficient in utilization of its debt resources.

In the case of ESM, during the period of study in 2000-01 and 2007-08, the interest coverage ratio showed a rising trend throughout the year, except in 2003-04, when it was negative. The ratios in most of the years were too much low during the period, except in 2007-08. However, the averaging out of the ratio was at 0.24 times along with 158.33 percent coefficient of variation.. It can be observed that the management of capital structure of the sugar mill was not so efficient in utilization of long-term debt.

ISCU was found to be the most efficient among the selected sugar mills in managing its capital structures followed by SRSM, ISCU and ESM.

5.3 Activity or Turnover Ratio

Generally, it has been observed that the activity or turnover ratios reflect how effectively the firm employs the resources to obtain higher profits at lower costs. These ratios compare between the level of sales and the investment in various parts of the assets. Therefore, these ratios help to measure the financial efficiency of the management. For that purpose, inventory turnover ratio, receivables turnover ratio, current assets turnover ratio, fixed assets turnover ratio and total assets turnover ratio have been computed with their respective mean. As regards to the measurement of efficiency, the higher turnover ratio is the sign of efficient utilization of resources. On the other hand, lower turnover ratio represents the position of costs and risk associated with those resources.

5.3.1 Inventory Turnover Ratio

Inventory turnover ratio indicates the efficiency with which the firm uses its inventory (Dominiak and Louderback, (1984) the high turnover ratio is the evidence of generally high quality of the inventory and of the ability of the management to move its merchandise quickly. Conversely when the ratio is low, the inclusion of slow moving possibly obsolete or shop work item of questionable value may be suspected and surely may be raise regarding the efficiency and merchandising ability of the management Shrestha (2004). Inventory turnover ratio is one of the most important measures of the efficiency of working capital. It indicates how frequently inventory moved in and out of an enterprise during a period. The ratio is usually expressed in the number of times.

Table 5.7 exhibits the inventory turnover ratio, the mean of inventory turnover ratio and the combined average of the ratios of the selected sugar mills of Nepal during the period of 8 8ears from 2000-01 to 20007-08.

Table: 5.7
Inventory Turnover Ratio of the Selected Sugar Mills of Nepal during 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio Times
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	
2000-01	9.20	2.89	3.44	3.02	4.18
2001-02	12.24	5.93	5.74	3.10	6.75
2002-03	3.92	6.23	8.22	4.49	5.57
2003-04	1.67	2.28	4.38	2.42	2.50
2004-05	4.28	5.21	3.54	3.45	4.33
2005-06	4.30	3.79	4.67	2.38	3.81
2006-07	1.37	2.53	2.58	4.17	2.25
2007-08	5.40	4.76	3.15	2.79	4.01
Mean	5.30	4.20	4.47	3.28	4.18
C.V. In %	65.28	34.52	37.81	25.00	33.05

Source: Appendix 1.1 to 1.4

Table 5.7 illustrates that during the study period the combined average of the inventory turnover ratios of the selected sugar mills of Nepal showed a fluctuating trend, which varied from the highest 6.75 times in 2001-02 to the lowest 2.25 times in 2006-07 resulting in a combined average of 4.18 times with a coefficient of variation of 33.05 percent. The fluctuating trend so observed was due to the rising and falling trends in the size of inventory of the sugar mills of Nepal during the period.

With respect to individual enterprises, in ISCU, during the period, the ratio did not show a definite trend rather it fluctuated between the highest 12.24 times in 2001-02 to the lowest 1.37 times in 2006-07, averaging out at 5.30 times with the statistical variation of 65.28 percent. In 2001-02, the ratio jumped high due to the high volume of sales gained by the industry.

In case of SRSM, during the period, the ratio showed an upward trend between 2000-01 and 2002-03 and then onwards, a fluctuating trend registering the highest 6.23 times in 2002-03 and the lowest 2.28 times in 2003-04, averaging out at 4.20 times along with the coefficient of variation of 34.52 percent. The reason for the wide variation of the ratio was due to huge change in the volume of sales.

In ESCI, table 5.7 presents a variety of trends during the period. It showed an upward trend from 2000-01 to 2002-03, a downward trend from 2002-03 to 2004-05 and then onwards a fluctuating trend from 2004-05 to 2007-08. On the whole, the inventory ratio has been exhibited from the highest 8.22 times in 2002-03 to the lowest 2.58 times in 2006-07 at an average of 4.47 times along with coefficient of variation of 37.81 percent. It was observed that the ratio jumped high in 2002-03 due to bumper sales gained by the enterprise.

In ESM, during the period of study from 2000-01 to 2007-08, the respective table displayed a fluctuating trend, which varied from the highest 4.49 times in

2002-03 to the lowest 2.38 times in 2005-06. Its averaging out was at 4.47 times with coefficient of variation of 25 percent.

Among the selected sugar mills of Nepal, during the study period, ISCU was found to be the most efficient sugar mill in managing its inventory.

5.3.2 Receivables Turnover Ratio

Receivable turnover ratio is another important activity ratio which measures the efficiency in working capital management. It indicates how efficiently the receivables are being utilized in the enterprise. This ratio is also expressed as number of times. Higher the ratio, more efficient is the management of receivables.

Table 5.8 presents the receivable turnover ratio of the sugar mills during the period of study from 2000-01 to 2007-08.

Table: 5.8
Receivable Turnover Ratio of the Selected Sugar Mills of Nepal during
2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio Times
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	
2002-01	3.07	15.96	7.46	12.15	5.45
2001-02	5.01	11.77	12.49	13.17	8.89
2002-03	6.13	17.04	10.01	14.21	10.31
2003-04	3.98	10.02	7.34	16.67	7.40
2004-05	6.64	23.64	9.91	23.96	11.53
2005-06	5.81	17.58	15.75	15.35	10.72
2006-07	4.92	10.07	7.36	11.12	7.54
2007-08	10.85	13.84	10.68	11.73	11.63
Mean	5.80	14.99	10.13	15.51	9.18
C.V. In %	37.81	28.62	27.05	27.34	22.79

Source: Appendix 1.1 to 1.4

Obviously, as is shown in Table 5.8, the combined receivable turnover ratio, initially, during the period of study, showed an increasing trend from 5.45 times in 2000-01 to 10.31 times in 2002-03 followed by a decreasing trend from 11.53 times in 2004-05 to 7.54 times in 2006-07, except in 2003-04 and 2007-08, when there were slight decrease of 7.40 times and increase of 11.63 times respectively, resulting in an average of 9.18 times. The coefficient of variation shows that the variability of the ratio during the period was 22.79 percent. It is observed that the sugar mills of Nepal had poor sales performance in the later years of study.

With respect to individual industries, in ISCU, the ratio showed a rising trend from the lowest 3.07 times in 2000-01 to the highest 10.85 times in 2007-08, except in 2003-04, 2005-06 and 2006-07, when it was 3.98 times, 5.81 times and 4.92 times respectively. Its averaging out was at 5.80 times with coefficient of variation of 37.81 percent. The highest ratio as recorded in the last year of the study was due to sudden rise in the sales then.

In SRSM, during the period, the ratio showed a fluctuating trend from the highest 17.04 times in 2000-01 to the lowest 10.02 times in 2003-04 and a downward trend from the highest 23.64 times in 2004-05 to the lowest 10.07 times in 2006-07, except in 2007-08 when it showed a rise of 13.84 times. The average ratio during the period was at 14.99 times along with a coefficient of variation of 28.62 percent. The ratio soared up in 2004-05 due to bumper sales achieved by SRSM.

In case of ESCI, table 5.8 exhibits a declining trend from the highest 12.49 times in 2001-02 to the lowest 7.34 times in 2003-04 except in 2000-01 when it was at 7.46 times. After that, the ratio showed a fluctuating trend during the later part of the study. It varied from the highest 15.75 times in 2001-02 to the lowest 7.34 times in 2003-04. Its averaging out was at 10.13 times with coefficient of variation of 27.05 percent.

In ESM, during the period of study from 2000-01 to 2007-08, the ratio showed a rising trend from the lowest 12.15 times in 2001-02 to the highest 23.96 times in 2004-05 and then onwards a declining trend from the highest 23.96 times in 2004-05 to the lowest 11.12 times in 2006-07. The ratio increased slightly to 11.73 times in 2007-08. The averaging out was at 15.51 times with a coefficient of variation of 27.34 percent. In 2004-05, the ratio increased due to the sudden rise in sales of the enterprise.

Among the sugar mills of the Nepal, ESM was found to be the most efficient mill in managing the receivables followed by SRSM, ESCI and ISCU.

5.3.3 Current Assets Turnover Ratio

The overall efficiency of working capital of an enterprise can be measured by current assets turnover ratio, which indicates how efficiently the short-term funds have been employed by the enterprise for maximizing profitability with a given level of risk. Higher working capital turnover ratio indicates the lower investment in short term fund resulting in greater profits. Sometimes, a very high ratio may also mean insufficient working capital funds for a given volume of business. A low ratio clearly indicates that the working capital is not sufficiently active.

It is apparent from Table 5.9 that the combined average turnover of current assets in 2002-03 sugar mills during the period was fluctuating almost

year to year without making a clear-cut trend of either increase or decrease. The variation between the highest and the lowest ratio was recorded 3.02 times in 2002-03 and 1.55 times in 2006-07 respectively resulting in an average of 2.39 times with a statistical variation of 21.75 percent. Thus, it appears that the working capital did not seem to be sufficiently utilized in the Nepalese sugar mills during the period.

Table: 5.9
Current Assets Turnover Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio Times
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	
2000-01	2.07	2.11	2.13	2.13	2.10
2001-02	2.21	3.15	3.81	2.09	2.99
2002-03	2.01	3.70	3.35	2.58	3.02
2003-04	1.11	1.76	2.57	1.95	1.75
2004-05	2.55	3.75	2.30	2.47	2.79
2005-06	2.15	2.68	2.88	1.62	2.35
2006-07	0.97	1.85	1.75	2.29	1.55
2007-08	0.11	3.10	2.21	1.87	2.60
Mean	1.65	2.76	2.63	2.13	2.39
C.V. In %	46.97	26.81	24.33	15.96	21.75

Source: Appendix 1.1 to 1.4

Individually, in ISCU, the current assets turnover ratio showed downward trend from the highest 2.07 times in 2000-01 to the lowest 0.11 times in 2007-08, except in 2001-02 and 2004-05, when the ratio increased with 2.21 times and 2.55 times respectively. The ratio averaged 1.65 times along with 46.97 percent statistical variation..

In SRSM, the ratio registered an increasing trend from the lowest 2.11 times in 2000-01 to the highest 3.70 times in 2003-04, except in 2003-04 during the first half of the period and a decreasing trend from the highest 3.75 times in 2004-05 to the lowest 1.85 times in 2006-07, except in 2007-08 during the second half of the period. The average ratio for the period has been 2.76 times with coefficient of variation of 26.81 percent.

In ESCI, during the period, the ratio showed downward trend between the highest 3.81 times in 2001-02 to the lowest 2.88 times in 2005-06, except in 2000-01. It then showed a fluctuating trend from the highest 2.88 times in 2001-02 to the lowest 1.75 times in 2006-07 during the last three years of study, resulting in an average of 2.63 times with 24.33 percent statistical variation.

In case of ESM, during 2000-01 and 2007-08, the ratio overall showed a fluctuating trend year after year which varied from the highest 2.58 times in 2002-03 and the lowest 1.62 times in 2005-06, averaging out at 2.13 times along with a coefficient of variation of 15.96 percent.

On comparing the mean values of the ratios among the selected sugar mills, it can be said that SRSM was more efficient in utilizing current assets than other mills.

5.3.4 Fixed Assets Turnover Ratio

The fixed assets turnover ratio measures the efficiency with which the firm is utilising its investment in fixed assets, such as land building, plant and machinery, furniture etc. It also indicates the adequacy of sale in relation to the investment in fixed. The fixed turnover ratio is computed the sales divided by net fixed assets.. It is suggested that higher the turnover ratio greater is the efficiency of fixed assets and vice versa. In order to make an analysis of the efficiency of fixed assets management in the sugar mills of Nepal, the fixed assets turnover ratio has been computed and presented in table 5.10

It is obvious from the respective Table: 5.10 that the combined average fixed assets turnover ratio of the selected sugar mills showed a fluctuating trend during the first 5 years registering the highest 0.79 times in 2004-05 and the lowest 0.55 times in 2002-03 and an increasing trend during the last three years registering from the lowest 0.68 times in 2005-06 to the highest 0.97 times in 2007-08. The ratio averaged out at 0.71 times along with the coefficient of variation of 18.14%.

Table: 5.10
Fixed Assets Turnover Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	Ratio Times
2000-01	3.21	0.34	0.45	0.18	0.58
2001-02	2.02	0.49	0.67	0.20	0.68
2002-03	1.67	0.48	0.80	0.22	0.55
2003-04	1.21	0.52	0.87	0.35	0.62
2004-05	2.55	0.75	0.73	0.37	0.79
2005-06	2.37	0.61	0.75	0.28	0.68
2006-07	2.24	0.64	1.00	0.44	0.79
2007-08	4.43	0.70	1.10	0.47	0.97
Mean	2.46	0.57	0.80	0.36	0.71
C.V. In %	37.72	22.81	23.33	25.00	18.14

Source: Appendix 1.1 to 1.4 and 2.1 to 2.4 .

With respect to individual sugar mills, in ISCU, the ratio showed a decreasing trend between 2000-01 and 2003-04 recording the highest 3.21 times and the lowest 1.21 times. The ratio showed a similar trend again between 2004-05 and 2006-07 recording the highest 2.55 times and the lowest 2.24 times and then increasing trend at 4.43 times in last year of the study. The sudden jump of ratio was due to bonanza sale in that particular year 2007-08. The average of turnover during the period was at 2.46 times with 37.72% statistical variation.

In SRSM, the ratio showed a rising trend during the period overall from the lowest 0.34 times in 2000-01 to the highest 0.70 times in 2007-08, except in 2002-03 and 2005-06 resulting in average of 0.57 times along with coefficient of variation of 22.81%. It was observed, during first four years of the study, that the ratio was lower than average, which indicated unsatisfactory utilization of fixed assets.

In ESCI, the ratio of fixed assets turnover ratio showed an increasing trend from the lowest 0.45 times in 2000-01 to the highest 1.10 times in 2007-08, except in 2004-05, resulting in an average of 0.80 times with 23.75% coefficient of variation.

. In case of ESM, during the period 2000-01 and 2007-08, the ratio showed a similar increasing trend, except in 2005-06, recording the lowest 0.22 times in 2002-03 and the highest 0.47 times in 2007-08. The average of the ratio during the period was 0.36 times along with coefficient of variation of 25%.

. A comparative study of the fixed assets turnover ratio of the sugar mills under study reveals that the efficiency of the most of the sugar mills in managing their fixed assets had been below average. ISCU was more efficient in managing its fixed assets followed by ESCI, SRSM and ESM respectively.

5.3.5 Total Assets Turnover Ratio

Although fixed assets are directly concerned with the generation of sales, but other assets also contribute to the production and sales activities of the firm. The firm must manage its total assets efficiently and should generate maximum sales through their proper utilisation (Pandey, 2012). The total assets turnover ratio (TATR) is calculated dividing sale by total assets of the firm. Thus, this turnover is an important financial tool which measures the performance of the enterprise. Therefore, greater the ratio more efficient would be the management in utilising its total assets or vice-versa. Moreover, when this ratio increases, it indicates an overall increase in efficiency of total assets utilization. On the other hand, the decline in ratio indicates that the enterprise has not been able to generate sufficient sales volume in proportion to total assets. Table 5.11 considers total assets turnover ratio of the selected sugar mills of Nepal during the period of study in 2000-01 and 2007-08.

It is evident from the Table: 5.11 that the combined average TATR of the selected sugar mills under study registered a fluctuating trend during the period overall. It varied between the lowest 0.46 times in 2003-04 and the highest 0.83 times in 2007-08, resulting in an average of 0.58 times with a coefficient of variation of 13.91 percent.. The main reason behind such a trend shown by the ratio of these sugar mills was due to uncertain trend in their total assets and sales. However, the average of TATR of Nepalese sugar mills did not seem satisfactory to fetch adequate return thereof.

Table: 5.11
Total Assets Turnover Ratio of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average
	Ratio Times	Ratio Times	Ratio Times	Ratio Times	Ratio Times
2000-01	1.26	0.29	0.33	0.20	0.52
2001-02	1.05	.0.41	0.50	0.22	0.55
2002-03	.92	0.40	0.60	0.19	0.54
2003-04	.57	0.38	0.62	0.25	0.46
2004-05	1.27	0.60	0.50	0.26	0.66
2005-06	1.12	0.48	0.52	0.18	0.58
2006-07	.67	0.45	0.57	0.27	0.49
2007-08	1.82	0.55	0.66	0.28	0.83
Mean	1.09	0.44	0.54	0.24	0.58
C.V. In %	33.55	20.56	17.61	15.78	13.91

Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

With respect to individual sugar mills, in ISCU, the total assets turnover ratio showed a declining trend during the first four years of the study recording the highest 1.26 times in 2000-01 and the lowest 0.57 times in 2003-04. It then showed a fluctuating trend during the last four years of the study varying between the highest 1.82 times in 2007-08 and the lowest 0.67 times in 2006-07. Its averaging out was at 1.09 times along with coefficient of variation of 33.55 percent. It has been observed that during the first four years of the study the declining trend was due to rising trend in its total assets. The fluctuating trend in this ratio during the last four years of the study was due to the small size of

relative sales in 2005-06 and 2007-08 as compared to last year's size of sales. Although the average total assets turnover ratio of the company has been higher than the combined average of the selected sugar mills taken together, the relative size of sales of the enterprise still seems insufficient to generate reasonable profits.

In SRSM, total assets turnover ratio showed a fluctuating trend during the period of study recording the highest 0.60 times in 2004-05 and the lowest 0.38 times in 2003-04, resulting in an average of 0.44 times with 20.56 percent statistical variation.. Such a trend was due to increasing and decreasing trends in total assets and a gradual rise in sales. It has been observed that sales in 2003-04, 2005-06 and 2006-07 were lower as compared to their previous year's sale. The average of TATR of the sugar mill has been a dismal as compared to the combined average TATR of the selected sugar mills of Nepal taken together. It indicates the need of much effort for a sugar mill to compete with the fellow sugar mills.

In ESCI, TATR showed an upward trend during the period recording the lowest 0.33 times in 2000-01 and the highest 0.66 times in 2007-08, except in 2004-05, resulting in average of 0.54 times along with coefficient of variation of 17.61 percent. It can be observed that the increasing trend of the ratio was due to the gradual rise in the size of the sales during the period.

In case of ESM, the ratio of total assets turnover during 2000-01 and 2007-08 showed a similar trend from the lowest 0.19 times in 2002-03 to the highest 0.28 times in 2007-08, except in 2005-06. It averaged at 0.24 times with a coefficient of variation of 15.78 percent.. Such a trend was due to gradual increase in sales during the period, except in 2005-06.

In comparison, the average of total assets turnover ratio of ISCU has been the highest followed by ESCI, SRSM and ESM respectively.

5.4 Appraisal of Profitability

Sales are the main source of profits indeed. Therefore, huge sales indicate greater profits whereas smaller sales indicate lower profits. In an enterprise, the sales ought to be so large that the adequate profit so earned may meet the operating expenses. If the adequate profits are not earned by sales, the owners will not receive any return from their investment. This will endanger the survival of the enterprise. Therefore, it is necessary to evaluate the profitability of the enterprise based on sales and investment from time to time. In this present study, the following two major profitability ratios have been calculated to measure the financial efficiency of the selected sugar mills of Nepal during 2000-01 and 2007-08.

5.4.1 Profitability in Relation to Sales

Profitability on sales of an enterprise can be measured by net profit margin ratio. This is a ratio of net profit after taxes to sales expressed in percentages. The ratio compares net profit with sales, as it is important to evaluate the ability of company to generate adequate profit on each rupee of sales. If the company does not earn a sufficient margin of profit on sales, it will not be able to cover its costs and provide dividend to owners. Higher the ratio, more efficient would be the management of the enterprise or vice-versa.

The net profit margin on sales computed for the selected sugar mills of Nepal during the period of study 2000-01 and 2007-08 is shown in table 5.12

It is vivid from Table 5.12 that the combined average net profit margin ratio of the selected sugar mills was negative during the period, except in 2000-01 and 2007-08. It showed a fluctuating trend varying between 3.45 percent in 2007-08 and -6.60 in 2003-04 resulting in average of -2.11 percent along with the coefficient of variation of 154.69 percent Overall, the ratio reflected that sugar mills of Nepal had dismal profitability and that they were facing tremendous financial distress during the period.

Table: 5.12
Net Profit Margin Ratio of the Selected Sugar Mills of Nepal during 2000-01
and 2007-08

Year	ISCU	SRSM	ESCI	ESM	Average Ratio
2000-01	11.97	-0.59	-8.71	-26.56	2.16
2001-02	9.60	-5.07	-4.95	-22.44	-1.26
2002-03	9.38	-8.38	-6.40	-19.65	-5.31
2003-04	7.83	-3.37	-0.50	-39.97	-6.60
2004-05	7.05	4.14	-9.02	-25.07	-1.96
2005-06	4.71	1.30	-5.39	-31.99	-3.66
2006-07	2.06	-5.95	0.28	-13.71	-3.70
2007-08	5.35	1.42	2.48	-0.90	3.45
Mean	7.24	-2.06	-4.03	-21.88	-2.11
C.V.	40.77	195.63	99.50	57.54	154.69

All values are in percentage and Source: Appendix 2.1 to 2.4

In case of individual sugar mills, in ISCU, the net profit margin ratio showed a declining trend during the period, recording the highest 11.97 percent in 2000-01 and the lowest 2.06 percent in 2006-07, except in 2007-08, when the ratio rose up. The averaging out of the ratio during the period was 7.24 percent along with coefficient of variation of 40.77 percent. The ratio reveals that the management was able to meet the costs, though the ratio was in decreasing trend.

In SRSM, the ratio was negative in most of the years during the period. It showed an uncertain trend between 4.14 percent in 2004-05 and -8.38 percent in 2002-03 resulting in average of -2.06 percent along with coefficient of variation of 195.63 percent. It has been observed that the ratio was positive in 2004-05, 2005-06 and 2007-08. However, it reveals that the mill had dismal profitability situation during the period.

In ESCI, the ratio was negative for the first six years and positive for the last two years of the period of study. The ratio showed an indefinite trend during the period registering the highest 2.48 percent in 2007-08 and the lowest -9.02 percent in 2004-05 resulting in an average of -4.03 percent along with coefficient of variation of 99.50 percent. Although the overall profitability of the mill was not favourable during the period, it improved particularly in the later two years of the study.

In ESM, the ratio was negative throughout the year during the period 2000-01 and 2007-08. The ratio showed a fluctuating trend during the first three years of the study recording the highest -39.97 percent in 2003-04 and the lowest -19.65 percent in 2002-03 and then showed a decreasing trend from the highest -31.99 percent in 2005-06 to the lowest -0.90 percent in 2007-08. The averaging out during the period was -21.88 percent along with 57.54 percent statistical variation. The ratio reveals that the sugar mill had dismal profitability of sales during the period.

In comparison, ISCU alone had good performance whereas rest of the sugar mills had poor performance in profitability during the period of study.

5.4.2 Profitability in Relation to Investment

The measurement of profitability will enable the owners to evaluate how their investments are being utilized. That will also help management to review its performance over a period. Such profitability can be measured by computing profitability ratios determined based on investments. There are three types of profitability ratios related to investments. They are return on assets, return on capital employed and return on shareholder's equity.

5.4.2.1 Return on Assets

Return on assets, a profitability ratio on investment, is measured in terms of the relationship between profit and assets of the enterprise. In this study, operating profit and operating assets have been considered for computation of the ratio. The operating profits have been calculated by subtracting cost of goods sold and other operating expenses from total of sales and other operating income. Similarly, operating assets have been arrived at by deducting accumulated losses, deferred expenditures, current liabilities, investments, loan and advance, capital in progress, machinery in transit and so on from the table assets shown in the mills' balance sheet. This ratio suggests that greater the ratio more is the utilization of the enterprise's operating assets in generating

profits. The following Table 5.13 presents the return on assets of the selected sugar mills of Nepal during the period of the study.

Table: 5.13
Return on Assets of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

YEAR	ISCU	SRSM	ESCI	ESM	Combined Average Ratio
	Ratio	Ratio	Ratio	Ratio	
2000-01	24.87	-0.13	-1.43	-9.84	2.01
2001-02	16.03	-2.16	-0.98	-7.33	0.09
2002-03	11.21	-3.71	-2.54	-4.10	-2.05
2003-04	9.21	-1.87	-0.39	-13.03	-3.79
2004-05	16.06	3.74	-5.49	-10.05	-1.30
2005-06	11.59	0.70	-3.57	-10.59	-2.30
2006-07	4.90	-4.60	0.23	-12.32	-3.19
2007-08	26.26	1.26	2.00	-0.44	3.46
Mean	15.02	-0.85	-1.52	-8.42	-0.88
C.V.	46.36	304.71	143.12	54.51	270.99

All values are in percentage and Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

It is obvious from the above table that the combined average return on assets of the selected sugar mills of Nepal was negative during the period, except in 2000-01, 2001-02 and 2007-08, when it was positive. The ratio showed a decreasing trend during the first four years of the study from the highest 2.01 percent in 2000-01 to the lowest -3.79 percent in 2003-04 and then a fluctuating trend during the last four years of the study varying between the highest 3.46 percent in 2007-08 and the lowest -1.30 percent in 2004-05. The ratio averaged

at -0.88 percent during the period along with coefficient of variation of 270.99 percent.. Overall, the management of the selected sugar mills seemed unable to manage their operating assets in most of the years during the period in generating profits.

With regard to individual sugar mills, in ISCU, the return on assets ratio was positive throughout the year. The ratio showed a decreasing trend during the period from the highest 24.87 percent in 2000-01 and the lowest 4.90 percent in 2006-07, except in 2004-05 and 2007-08, when the ratio rose up resulting in an average of 15.02 percent along with 46.36 percent coefficient of variation.. The ratio reveals that the management was efficient in utilisation of operating assets in generating the profit.

In SRSM, the ratio was negative during the period except in 2004-05, 2005-06 and 2007-08, when it was positive. The ratio showed an indefinite trend during the period, which varied from the highest 3.74 percent in 2005-06 and the lowest -4.60 percent in 2006-07 resulting in an average of -0.85 percent along with 304.71 percent statistical variation. It can be observed that the management of the sugar mill was inefficient in utilizing the operating assets in most of the years during the period.

In ESCI, the return on assets ratio was recorded negative during the first six years of study and was positive during the last two years of the study. The

trend of the ratio was indefinite ranging between the highest 2.00 percent in 2007-08 and the lowest -5.49 percent in 2004-05 resulting in average of -0.85 percent along with 304.71 percent coefficient of variation. The ratio exhibited that the performance of the management was poor in utilizing the operating assets during the first six years of the study.

In ESM, the ratio was negative throughout the year of the study and showed a fluctuating trend during the period 2002-03 and 2007-08, resulting in an average of -8.42 percent along with coefficient of variation of 54.51 percent.. The ratio revealed that management of sugar mill totally failed in utilising the operating assets for the purpose of generating profit.

ISCU was efficient in utilising the operating assets as compared to other selected sugar mills. The profitability of other selected sugar mills was quite discouraging during the period.

5.4.2.2 Return on Capital Employed

Another ratio is return on capital employed. It measures the profitability on investment. The return on capital employed indicates how well management has used the funds supplied by creditors and owners (Pandey, 2012). This ratio shows the relationship between net profit and long-term funds provided by owners and creditors. This ratio suggests that greater the ratio more is the efficiency in utilizing the long-term funds provided by both the owners and

creditors. Moreover, when the ratio increases, it indicates the increased overall efficiency of the capital employed in the enterprise. On the other hand, the decline in the ratio reveals that the management of the enterprise had not been able to utilize the employed capital. Table 5.14 exhibits the return on capital employed of the selected sugar mills of Nepal during the period of study in 2000-01 and 2007-08.

Table: 5.14
Return on Capital Employed of the Selected Sugar Mills of Nepal during 2000-01 and 2007-08.

Year	ISCU	SRSM	ESCI	ESM	Combined Average
2000-01	15.08	-0.17	-3.22	-7.13	0.98
2001-02	10.12	-2.15	-2.81	-5.85	-0.70
2002-03	8.64	-3.59	-4.27	-4.05	-2.46
2003-04	4.53	-1.35	-0.33	-11.89	-3.02
2004-05	8.99	2.58	-5.02	-7.98	-1.21
2005-06	5.32	0.64	-3.22	-7.55	-1.94
2006-07	1.39	-2.82	0.18	-5.04	-1.93
2007-08	9.78	0.81	1.82	-0.34	2.32
Mean	7.98	-0.76	-2.11	-6.14	-1.00
C.V.	48.95	256.58	105.69	58.63	170

All values are in percentage and Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

It is apparent from the table that the combined average return on capital employed of the selected sugar mills of Nepal was negative throughout the study period, except in 2000-01, 2001-02 and 2007-08, when the ratio was positive.

The ratio showed a declining trend during the first four years of the study from the highest 0.98 percent in 2000-01 to the lowest -3.02 percent in 2003-04 and then showed a fluctuating trend during the last four years of the study resulting in an average of -1.00 percent along with coefficient of variation of 170 percent.. It reveals that most of those sugar mills were not efficient in utilising the capital employed. As a result, the profitability of the mill had been dismal during the period

With regard to individual sugar mills, in ISCU, the ratio was positive throughout during the period and showed a decreasing trend from the highest 15.08 percent in 2000-01 to the lowest 1.39 percent in 2006-07, except in 2004-05 and 2007-08, when the ratio increased. The averaging out of the ratio during the period was 7.98 percent along with 48.95 percent coefficient of variation.. The ratio reveals that the management of ISCU was efficient in utilising the capital employed for generating profit.

In SRSM, the ratio of return on gross capital employed was negative in most of the years of the study. The ratio showed an indefinite trend during the period ranging between 2.58 percent in 2004-05 and -3.59 percent in 2002-03 at an average of -0.76 percent along with coefficient of variation of 256.58 percent.. Overall, the management was unable to utilize the capital employed in most of the years during the period.

In ESCI, the ratio was negative during the first six years of study and then positive during the last two years of the study. The ratio showed an uncertain trend during first four years of the study recording the highest -4.27 percent in

2002-03 and the lowest -0.33 percent in 2003-04. It then showed a rising trend during the last four years of the study from the lowest -5.02 percent to the highest 1.82 percent in 2007-08. The average of the ratio during the period was -2.11 percent along with 105.69 percent coefficient of variation. The ratio reveals the performance of the management had been better during the last four years of the study than it was in the first four years of the study.

In the case of ESM, the ratio was negative throughout the study period. The ratio showed a decreasing trend during the period 2002-03 and 2007-08 resulting in average of -6.14 percent along with 58.63 percent statistical variation. The performance of the management seemed too much poor in utilising the capital employed for generating profit.

In comparison, the profitability of sugar mills selected for study was not encouraging, except ISCU, during the period.

5.4.2.3 Return on Shareholder's Equity

The return on shareholder's equity is one of the important ratios, which measures the profitability on investment. It shows the relationship between profits and owner's equity. This ratio is computed by dividing net profits after interest and taxes by owner's equity. This ratio reveals how efficiently the owner's funds have been utilized in generating profits. Therefore, higher the ratio, more favourable it is for the owners. A study of this ratio for a period throws light on relative performance and strength of the sugar mills.

The return on owner's equity of the selected sugar mills of Nepal for the period of study has been computed and presented in Table 5.61.

Table: 5.15
Return on Owner's Equity of the Selected Sugar Mills of Nepal
During 2000-01 and 2007-08

Year	ISCU	SRSM	ESCI	ESM	Average Ratio
2000-01	38.56	-0.65	-13.80	-19.50	3.58
2001-02	19.80	-8.03	-12.37	-15.24	-2.43
2002-03	17.09	-14.97	-21.25	-14.81	-9.02
2003-04	13.47	-6.59	-1.52	-83.06	-14.24
2004-05	22.67	10.38	-24.05	-74.26	-5.45
2005-06	12.33	2.47	-16.50	-897.75	-9.87
2006-07	4.96	-13.14	0.90	N	-11.19
2007-08	22.97	3.45	6.59	-2.49	7.92
Mean	18.98	-3.39	-10.25	-	-5.09
C.V.	48.87	242.18	100.68	-	140.79

All values are in percentage, N = Negative and Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

It is clear from the Table 5.15 that the combined ratio of return on owner's equity of the selected sugar mills of Nepal during the period was negative, except in 2000-01 and 2007-08, when the ratio was positive. The ratio during the period of study showed a fluctuating trend which varied between the highest 7.92 percent in 2007-08 and the lowest -14.24 percent in 2003-04 resulting in average of -5.09 percent along with coefficient of variation of 140.79

percent.. It can be observed that the performance of the management of sugar mills seemed poor in utilising the owner's fund in most of the years during the period.

With regard to individual sugar mills, in ISCU, the ratio showed a positively decreasing trend during the period from the highest 38.56 percent in 2000-01 to the lowest 4.96 percent in 2007-08, except in 2003-04 and 2007-08, at an average of 18.98 percent along with 48.87 percent coefficient of variation. This ratio reveals that the management was efficient in proper utilization of owner's funds for generating profits. The sugar mill seemed to have better financial strength.

In SRSM, the ratio was negative in most of the years of the study period and showed an uncertain trend during the period registering the highest 10.38 percent in 2004-05 and the lowest -14.97 percent in 2002-03 resulting in average of -3.39 percent along with 242.18 percent coefficient of variation. The ratio reveals that the management was unable in utilising the owner's funds properly in most of the years during the period.

In ESCI, the ratio was negative during the first six years of the study and then positive during the last two years of the study. It showed a fluctuating trend during the first four years and an increasing trend during the last four years during the period of study. The fluctuating trend varied between the highest - 21.25 percent in 2002-03 and the lowest -1.52 percent in 2004-05, whereas an

increasing trend seemed between the lowest -24.05 percent in 2004-05 to the highest 6.59 percent in 2007-08. The averaging out of the ratio during the period was recorded at -10.50 percent along with coefficient of variation of 100.68 percent.. It can be observed that the management had better performance during later years of the study period.

In the case of ESM, the ratio of return on owner's equity was negative throughout the year during the period in 2000-01 and 2007-08 whereas in 2006-07, both the numerator and denominator of the ratio were negative. The negative ratio showed a fluctuating trend during the period. The ratio reveals that the performance of the management was too much poor during the period and was unable in utilising and owner's funds due to accumulated loss.

Among the selected sugar mills of Nepal, ISCU seemed to have better performance in utilising the owner's funds in generating the profit.

5.5 Regression Analysis

This section attempts to examine the relationship between the following specified dependent and independent variables to observe the financial performance of the selected sugar mills of Nepal during 2000-01 to 2007-08

5.5.1 (a) Regression of Liquidity on Capital Structure, Assets Utilisation and Profitability.

The corporate liquidity is decreasing in proxies for alternate sources of liquidity. i.e. debt to total capital ratio (DTCR), and operating efficiency (NPM

and RON) have a negative relationship to corporate liquidity and the log of sales as proxies of activity has indeterminate relationship to corporate liquidity Shrestha (2004). In this section, the liquidity in terms of current ratio as dependent variable has been regressed with on total debt to capital ratio, total assets turnover ratio and net profit margin ratio as independent variable of the selected sugar mills during 2000-01 and 2007-08

Table: 5.16

Regression of Current Ratio (Dependent Variable) on Debt to Total Capital, Total Assets Turnover and Net Profit Margin of the Selected Sugar Mills During 2000-01 to 2007-08

Regression	ISCU	SRSM	ESCI	ESM	Average Ratios
Constant	0.14	-4.34**	-4.18***	-0.38	-11.69
Debt to Total Capital	8.61**	8.63**	17.82	8.93***	0.09
Total Assets Turnover	0.30	2.63	-6.09	-8.30	-2.03
Net Profit Margin	-10.23	-9.60**	19.49	5.43	0.09
Adj R ²	0.59	0.96	0.64	0.55	0.76
df	7	7	7	7	7
F-Ratio	4.43***	46.43**	0.92***	3.46	8.46**

Note: * Significant at 1 % level

** Significant at 5 % level

*** Significant at 10 % Level

Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

It is clear from Table 5.16 that F-ratio shows a significant regression equation at 5 percent level of significance between the combined current ratio and combined total debt to capital, total assets turnover and net profit margin ratios of the selected sugar mills of Nepal. It is observed from the table that the coefficient of total assets turnover ratio is negative as well as it is insignificant also. On the other side, the coefficient of both total debt to capital ratio and net profit margin ratios are positive but found insignificant. However, Adj R² found 0.76 between combined dependent and independent variables of the selected sugar mills under study. The results are in support of the results of Shrestha's study (2004).

Individually, in Indushankar Chini Udyog (ISCU), the coefficient determination shows that the statistical relationship of net profit margin is negative where as the coefficients of total debt to capital and total assets turnover are positive. But the coefficient of total debt to capital ratio is found only significant for the period. However, F-ratio shows significant of the regression equation at 10 percent level for the fitness.

In Sriram Sugar Mill (SRSM), the coefficients of total debt to capital and total assets turnover are positive in which the coefficient of debt to capital ratio is significant at 5 percent level. The coefficient of net profit margin shows negative but it is significant at 5 percent of level. F-ratio significant at 5 percent level explains the fitness of regression equation

In Everest Sugar and Chemical Industries (ESCI), it is displayed from the table that the coefficient of total assets turnovers is negative where as the coefficients of debt to capital and net profit margin is positive for this period. F-ratio shows the fitness of the regression model at 10 percent level of significance.

In the case of Eastern Sugar Mills (ESM), the coefficients of debt to capital and net profit margin ratios are positive where as the coefficient of total assets turnover ratio is negative. However, the coefficient of debt to capital ratio is found only significant at 10 percent level for the period. F-ratio does not show the significance of regress equation for fitness.

From the comparative study of Adj R^2 of the selected sugar mills of Nepal, it can be said that the correlation between dependent variable and independent variables is observed highest in Sriram Sugar Mill during the period of study.

5.5.1(b) Regression of Liquidity on Capital Structure, Assets Utilisation and Profitability

To examine the relationship of liquidity defined in terms of quick ratio with total debt to capital, total assets turnover and net profit margin of the selected sugar mills of Nepal, the quick ratio has been regressed with total debt to capital, total assets turnover and net profit margin during the period 2000-01 and 2007-08.

Table 5.17 presents the coefficients of regression relating quick ratio to total debt to capital, total assets turnover and net profit margin of the selected sugar mills during 2000-01 and 2007-08.

The combined coefficient of total assets turnover ratio is negative and insignificant whereas the combined coefficients of debt to total capital are positive. The combined coefficient of debt to capital is only significant at 5 percent level for the period. F-ratio shows the fitness of the regression equation at 5 percent level of significance.

Table: 5.17
Regression of Quick Ratio (Dependent Variable) on Debt to Total Capital, Total Assets Turnover and Net Profit Margin of the Selected Sugar Mills During 2000-01 to 2007-08

Regression	ISCU	SRSM	ESCI	ESM	Average Ratios
Constant	-0.48	-2.12**	-5.83**	0.32	-0.83
Debt to Total Capital	3.07	2.75**	11.99**	2.23	0.04**
Total Assets Turnover	0.28	2.162***	-0.91	-3.66	-0.88
Net Profit Margin	2.08	-5.47	7.29	1.86	0.03
Adj R ²	0.52	0.70	0.75	0.51	0.75
df	7	7	7	7	7
F-Ratio	3.47	18.76**	8.15**	3.08	7.94**

Note: * Significant at 1 % level

** Significant at 5 % level

*** Significant at 10 % Level

Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

Individually, in ISCU, the coefficient of regression of total debt to capital, total assets turnover and net profit margin are positive and insignificant. F-ratio also does not explain the fitness to the regression equation.

In SRSM, the table shows that the coefficients of debt to total capital ratio and total assets turnover ratio are positive and significant at the level of 5 and 10 percent respectively. On the other hand, the coefficient of net profit margin ratio is negative and insignificant. But F-ratio shows the fitness of regression equation at 5 percent level of significance.

In ESCI, the coefficient of total assets turnover is negative and insignificant where as the coefficient of debt to capital and net profit margin is positive. The coefficient of debt to total capital ratio only has been significant at 1 percent level. The significance of F-ratio in the equation at 5 percent level explains the fitness of the regression equation.

In the case of ESM, it is observed that the coefficients of all independent variables have been positive except total assets turnover because it is negative. The coefficients of these three independent variables are insignificant for the period. F-ratio also does not show the fitness of the regression equation.

A comparative study of Adj R^2 of the selected sugar mills shows that ESCI has highest coefficient determination between dependent variables and independent variables during the period 2000-01 and 2007-08.

5.5.2 Regression of Profitability on Liquidity, Capital Structure and Assets Utilisation

There is negative relationship of profitability to corporate liquidity and leverage (debt). Following, a new independent variable i.e. total assets turnover ratio (TATR) as proxies of activity of the firm has been introduced and a new model has been constructed in the study using profitability as dependent variable and liquidity, leverage and activity as independent variable Shrestha (2004). In this part of analysis, net profit margin (dependent variable) has been regressed on current ratio, debt to total capital and assets turnover of the selected sugar mills to observe their significant relationship during the period 2000-01 and 2007-08.

Table: 5.18

Regression of Net Profit Margin Ratio(Dependent Variable) on Current Ratio, Debt to Total Capital and Total Assets Turnover of the Selected Sugar Mills During the period 2000-01 to 2007-08

Regression	ISCU	SRSM	ESCI	ESM	Average Ratios
Constant	0.09	-0.38**	0.17	-0.11	-8.35
Current Ratio	0.01	-0.08**	0.01	0.06	2.84
Debt to Total Capital	-0.55***	0.71***	-0.61***	-0.79	-0.22
Total Assets Turnover	0.35***	0.26	0.25***	1.02	21.73***
Adj R ²	0.71	0.73	0.72	0.21	0.30
df	7	7	7	7	7
F-Ratio	6.77**	6.46***	7.11**	1.63	2.02

Note: * Significant at 1 % level

** Significant at 5 % level

*** Significant at 10 % Level

Source: Appendix 1.1 to 1.4 and 2.1 to 2.4

Table 5.18 presents the regression result of net profit margin measures on current ratio, debt to total capital and asset turnover ratio of the selected sugar mills under study. It is observed from the table that the combined coefficient of debt to total capital ratio has been negative and insignificant .On the other hand , though the coefficient of both current ratio and total assets turnover ratio have

been positive but the coefficient of total assets turnover is only significant at 10 percent level. F-ratio also shows overall insignificance of regression equation. This result is in consistent with the study of Shrestha (2004).

Individually, In ISCU, the coefficient of debt to total capital is negative and the coefficient of total assets turnover is positive but both coefficients have been significant at 10 percent level. The coefficient of current ratio is positive but insignificant. F-ratio also shows the significance of the regression equation at 5 percent level for fitness.

In SRSM, the table shows that debt to total capital and total assets turnover have positive coefficient but the coefficient of debt to total capital is significant at 10 percent level. On the other side, the current ratio has negative coefficient with 5 percent level of significance. F-ratio also explains the fitness of the regression equation at 10 percent level of significance.

In ESCI, the coefficient of debt to total capital is negative and assets turnover is positive but both have a significant coefficient at 10 percent level. The coefficient of current ratio is rather positive but not significant. F-ratio explains the fitness of the regression equation at 5 percent level of significance.

Similarly, in ESM, the coefficients of all variables are positive except debt to total capital because its result has been negative. Unfortunately, the coefficients of these three variables are insignificant and F-ratio also shows how insignificant the model is.

In comparison of the Adj R² of the selected sugar mills of the Nepal, SRSM has achieved the highest rate of Adj R² between the variables.

5.6 Summing Up

To sum up, this chapter has analysed and evaluate the financial performance of the sugar industries of Nepal selected for the study in term of liquidity, leverage, activity and profitability. An attempt has also been made to estimate the relationship of liquidity (current ratio and quick ratio) with debt, activity and profitability. Similarly, an attempt has been made to establish the relationship of profitability on various measures of liquidity, debt and turnover.

On the basis of above used ratios, it has been found that the overall liquidity position of the sugar mills has not been to the rule of the thumb due to increasing in current liabilities. The combined averages of current ratio and quick ratio have been observed to 1.67 and 0.54 respectively in span of 8 years of the study. Comparatively, Everest Sugar and Chemical Industries only maintained the high short-term liquidity. Nepalese sugar industries had very low proprietary ratio which adversely effected on the cost of capital. The combined average only 14.51 percent of equity to debt or total assets was observed while Indushankar alone has maintained higher equity position at 40.98 percent. The selected sugar mills borrowed averagely 51.44 percent long-term debt in their financial management during 8 years of the study in which that debt was observed to 64.50 percent particular in 2002-03. In comparison, Everest Sugar and Chemical Industries had largest size of debt to total capital (62.10 percent) where as Indushankar was found at smallest size (19.57 percent). The all four selected

sugar mills had average of 2.36 times of debt-equity ratio. It may be said, that the management consciously maintained a balanced capital structure during the period of study. At least, Nepalese sugar industries found able to pay interest charges out of their earnings though their interest coverage ratio showed too much low. Individually, Indushankar was found to be the most efficient among other sugar mills in managing its capital structure. In measuring turnover ratios, the ratios of all sugar mills under study have been observed at lower position except receivables turnover ratio which showed to 9.18 times. However, Indushankar was found most efficient in inventory, fixed assets and total assets turnover ratios whereas Sriram Sugar mills in current assets and Eastern sugar mills in receivables turnover. In measuring the profitability of the selected sugar mills of Nepal, the performance was not found satisfactory. The combined average of the net profit margin, return on assets, return on capital employed and return on shareholder's equity were observed negative. Comparatively, Indushankar only has been positive in measuring the all aspects of profitability ratios among the other sugar industries.

In the part of regression analysis between liquidity (dependent variable) and debt, activity and profitability, the coefficient of combined average total assets turnover ratio was found negative whereas the coefficient of debt to total capital and net profit was found in positive. Similarly, the relationship between net profit margin (dependent variable) and liquidity, debt and activity were examined and found debt to total capital at negative and current ratio and total assets turnover at positive.

CHAPTER VI

SURVEY ON PERFORMANCE APPRAISAL OF SUGAR INDUSTRY IN NEPAL

6.1 General Background

In this chapter, an attempt has been made to analyse the opinions of respondents with respect to the major aspects of the performance of sugar industry in Nepal. In this regard, this chapter first deals with the analysis of survey on performance of sugar mills and secondly with the test to know whether the difference in the opinions of the respondents is significant. For this test, the chi-square value is computed. To obtain this purpose, all respondents have been classified as direct stakeholders who comprise the directors, general managers, officials and employees of the concerned sugar mills and indirect stakeholders include sugarcane farmers, managers of biscuit factories and confectioners, fruits processors and distillery industries, sugar dealers and importers and government officials and non- governmental officials.

The questionnaire is designed to survey the opinions of 160 respondent stakeholders. Out of 160 respondents, 80 respondents were direct stakeholders and other 80 respondents consist of 40 sugarcane farmers, 20 managers and accountants of biscuits confectionary, fruits processing and distillery industries,

10 sugar dealers and importers and rest 10 chief officers of government and nongovernmental offices. Both the classes of respondents' opinions were analysed with respect to major aspects of performance of sugar mills of Nepal. The specimen of the questionnaire and the details of responses are presented in appendices 5.1 to 5.4.

6.2 Analysis of Opinions of Respondents

In this section, the responses of direct and indirect stakeholder respondents regarding the major aspects of performance of the Nepalese sugar mills have been analyzed and presented below:-

6.2.1 Contribution of Nepalese Sugar Mills

The responses of both the classes of respondents regarding the important contributions of Nepalese sugar mills have been presented in Table 6.1. In this respect, in overall, the respondents gave first priority to 'minimizing unemployment problem', second priority to 'meeting domestic demand of sugar', third priority to 'providing government revenue', fourth priority to 'substituting sugar import' and the last priority to 'saving foreign exchange'.

When the views were compared between these two classes of respondents on this aspect, they gave the first priority to 'minimizing

unemployment problem’ and the second priority to ‘meeting domestic demand for sugar’. However, the stakeholders from the mills gave the third priority to ‘providing government revenue’, while indirect stakeholders gave it fourth priority. Both the classes of stakeholders gave fourth and third priority to ‘substituting sugar import’ respectively. The respondents from both the classes gave the last priority to ‘saving foreign exchange’.

Table: 6.1
Contributions of Nepalese Sugar Mills

Contributions	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. Meeting domestic demand for sugar	2.41	2	2.58	2	2.49	2
b. Substituting sugar import	3.33	4	3.18	3	3.25	4
c. Minimizing unemployment problem	2.21	1	2.01	1	2.11	1
d. Providing government revenue	3.09	3	3.24	4	3.17	3
e. Saving foreign exchange	4.16	5	3.80	5	3.98	5

Source: Appendix- 4.3 (a)

To test whether the difference in the opinions of the direct and indirect stakeholder respondents is significant, the chi-square value is computed. The computed chi-square value is 2.574 and the table value at 0.05 level of

significance is 9.49 (Appendix-4.4). It can therefore, be stated that the opinions of both the classes of respondents are similar and there is no significant difference in their opinions with respect to the contribution of Nepalese sugar industry.

6.2.2 Meeting Present Demand for Sugar

Responses with respect to the ability of Nepalese sugar mills to meet present demand of sugar have been presented in Table 6.2. The table shows that the majority of respondents (46.88%) opined in favour of 'a half' meeting demand of sugar. Similarly, 28.12% respondents favoured for 'one-thirds' and 21.25% respondents were in favour of 'two-thirds'. A few of respondents (3.75%) went in favour of 'less than one-thirds' meeting of demand. In this aspect, when the views are compared between these two selected stakeholders respondents, majority of the respondents of both types of stakeholders were found in favour of 'a half' scale ability to meet present demand of sugar.

Table: 6.2
Meeting Present Demand of Sugar

Scale	Direct Stakeholders		Indirect Stakeholders		Overall	
	Number of Responses	%	Number of Responses	%	Number of Responses	%
1. Whole	0	0	0	0	0	0
2. Two-Third	24	30	10	12.50	34	21.25
3. A Half	35	43.75	40	50	75	46.88
4. One-Third	19	23.75	26	32.50	45	28.12
5. Less than One-Third	2	2.50	4	5	6	3.75

Source: Survey, 2011/12

6.2.3 Reasons for Running Sugar Mills in Loss or Low Profit

Responses with regard to the reasons behind running sugar mills in loss or low profit in Nepal have been summarized in table 6.3

From Table 6.3, in overall, it shows that the respondents gave the first priority to 'lower production', the second priority to 'unstable political situation', the third priority to 'labour problem', the fourth priority to 'financial problem' and the last priority to 'lack of power'.

When the views of both groups of stakeholders were compared among them on this aspect, they gave first priority to 'lower production', second priority to 'unstable political situation' and fifth priority to 'lack of power'. Direct stakeholders gave the third priority to 'financial problem' while indirect stakeholders gave it fourth priority. The stakeholders from sugar mills gave fourth priority to 'labour problem' while indirect stakeholders gave it third priority.

Table: 6.3
Reasons for Running Sugar Mills in Loss or Low Profit

Reasons	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. Lower production	1.65	1	1.61	1	1.63	1
b. Lack of power	3.94	5	4.03	5	3.98	5
c. Financial problem	3.21	3	3.43	4	3.32	4
d. Labour problem	3.38	4	3.29	3	2.96	3
e. Unstable political situation	2.83	2	2.65	2	2.74	2

Source: *Appendix- 4.3 (b)*

To test whether the difference in the opinions of the direct and indirect stakeholders is significant, the chi-square value is computed. The computed chi-square value is 0.194 and the table value at 0.05 level of significance is 9.49 (Appendix-4.4). It can therefore, be stated that the opinions of both the responding stakeholders are similar and there is no significant difference in their opinions with respect to the reasons for running in loss or low profit of sugar mills of Nepal.

6.2.4 Factors Attributed to Lower Production of Sugar

Lower production of sugar has been noticed from the selected sugar mills of Nepal. In this regard, respondents of both types of stakeholders were asked about the main factors attributed to the lower production of sugar. The summary of responses has been presented in Table 6.4.

The summary of responses has been presented in Table 6.6. In their overall ranks for the factors attributed to lower production, the respondents opined that the 'under capacity utilization' is the first, 'poor quality of raw material (sugarcane)' is the second, 'inefficient and ineffective management' is the third, 'political disturbance' is the fourth and 'lack of skilled workforce' is the fifth attributed factor of lower production of sugar.

When the priority of the opinions was compared among these two groups of respondents, they gave first priority to 'under capacity utilization, fourth priority to 'political disturbance' and fifth priority to 'lack of skilled labours. Direct stakeholders of sugar mills gave the second priority to 'poor quality of raw material' and third priority to 'Inefficient and ineffective management', while indirect stakeholders gave them third priority and second priority.

Table: 6.4

Factors Attributed to Lower Production of Sugar

Lower production	Stakeholders		Other Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. Under capacity utilization	2.23	1	1.95	1	2.09	1
b. Poor quality of raw materials	2.44	2	3.18	3	2.81	2
c. Inefficient and ineffective management	3.33	3	2.90	2	3.11	3
d. Lack of skilled labours	3.53	5	3.76	5	3.64	5
e. Political disturbance	3.49	4	3.21	4	3.35	4

Source: Appendix- 4.3(c)

The difference in the opinions of the responding of stakeholders is significant at 0.05 level of significance as the computed value of chi-square 10.17 is greater than the tabular value of 9.49 (Appendix 4.4). It indicates that there is no similar view between the direct and indirect stakeholder respondents with respect to factors attributed to lower production.

6.2.5 Reasons for Under Capacity Utilization

Due to various reasons, most of the sugar mills of Nepal are running under capacity utilization. In this connection, the responses are shown in Table 6.5. From the table shown below, it reveals that both groups of stakeholder respondents in overall rank gave the first priority to 'lack of sufficient raw material' as the major reason for the 'under capacity utilization', the second priority to 'ineffective purchasing policy of raw material', the third priority to 'low labour productivity', the fourth priority to 'inefficient management' and the last priority to 'lack in regular maintenance of plant and machinery'.

When the views of all respondents of these two classes of stakeholders were compared on this aspect, they gave the first priority to 'lack of sufficient raw materials', second priority to 'ineffective purchasing of raw materials' and fifth priority to 'lack in regular maintenance of plant and machinery'. In regarding the 'low labour productivity' and 'inefficient management' the opinions of direct stakeholders differ from the opinions of indirect stakeholders because former gave them third and fourth priority, while latter sector gave them fourth and third priorities.

Table: 6.5

Reasons for Running Under Capacity Utilization

Reasons for under capacity utilization	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. lack of sufficient raw materials	1.29	1	1.66	1	1.48	1
b. Low labour productivity	3.08	3	3.50	4	3.29	3
c. Inefficient management	3.83	4	3.18	3	3.50	4
d. Lack in regular maintenance of plant and machinery	4.05	5	4.21	5	4.13	5
e. Ineffective purchasing policy of raw materials	2.76	2	2.45	2	2.61	2

Source: Appendix- 4.3 (d)

To test whether the difference in the opinions of the stakeholders is significant, the chi-square value is computed. The computed chi-square value is 12.60 and the tabular value at 0.05 level of significance is 9.40(Appendix 4.4). Therefore, it can be stated that the difference in opinions of both classes of stakeholders are significant. There is no similar opinion between both the groups of respondents regarding the under capacity utilization.

6.2.6 Corrective Measures to Improve the Production of Sugar Mills

Table 6.6 shows the responses regarding the corrective measures to improve the production of existing sugar mills. The respondents gave the first priority to 'increase in availability of raw material', the second priority to 'utilize better quality raw material', the third priority to 'modernize their production system', the fourth priority to 'organize training workshop time to time for labour' and the last priority to 'need of peace and security during the period of production'.

When the opinions of both groups of stakeholders were compared, the both groups of stakeholder respondents gave the first priority to 'increase in availability of raw materials' second priority to 'utilize the better quality raw materials and third priority to 'modernize their production system'. The respondents' differed on to 'organize training workshop time to time for labour' and 'need of peace and security during the period of production'. The direct stakeholders gave fourth and fifth priorities to 'organize training workshop time to time for labour' and 'need of peace and security during the period of production' respectively, while the respondents of other stakeholders gave fifth and fourth priority respective to the same.

Table: 6.6
Corrective Measures to Improve the Production of Sugar Mills

Corrective measures	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. To increase in availability of raw mat.	1.59	1	1.66	1	1.63	1
b. To utilize the better quality raw materials	2.21	2	2.60	2	2.41	2
c. To organize training workshop time to time for labour	3.53	4	3.94	5	3.73	4
d. To modernize production system	3.49	3	3.25	3	3.37	3
e. Need of peace and security	4.19	5	3.58	4	3.88	5

Source: Appendix- 4.3 (e)

The chi-square value is computed to test whether the difference in the opinions of the direct stakeholders and indirect stakeholders is significant or not. The computed chi-square value is 8.991 and the tabular value at 0.05 level of significance is 9.49 (Appendix 4.4). Therefore, it can be stated that the opinions of both the responding stakeholders are similar and that there is no significant

difference in their opinions with respect to corrective measures to improve the production of sugar mills.

6.2.7 Suggestions to Overcome the Scarcity of Raw Materials

Table 6.7 reveals the opinions of both the classes of stakeholders with respect to the suggestion to overcome the scarcity of raw materials (sugarcane). In this regard, the respondents overall gave first priority to 'increasing production and productivity of sugarcane', the second priority to 'applying the improved technology of cultivation', the third priority to 'scheduling of delivery and crushing of sugarcane', the fourth priority to 'importing sugarcanes from nearby states of India' and the last priority to 'banning the export of sugarcanes to nearby Indian states'.

In comparison of the views of the both respondents were found similar in 'increasing production and productivity of sugarcane', 'importing sugarcanes from nearby states of India' and 'banning the export of sugarcanes to near states' They gave them first, fourth and fifth priority respectively. In other suggestions, their opinion differed. The direct stakeholders gave second priority to 'applying the improved technology of cultivation', third priority to 'scheduling of delivery and crushing of sugarcanes' while the indirect stakeholders gave them third and second priority respectively to the same.

Table: 6.7
Suggestions to Overcome the Scarcity of Raw Materials

Suggestion to over the scarcity of raw materials	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a., Increasing production and productivity of sugarcane	1.56	1	1.95	1	1.76	1
b. Applying the improved technology of cultivation	1.76	2	2.60	3	2.18	2
c. Scheduling of delivery and crushing of sugarcanes	3.08	3	2.54	2	2.81	3
d. Banning the export of sugarcanes to near states	4.36	5	3.99	5	4.18	5
e. Importing sugarcanes from nearby states of India	4.24	4	3.96	4	4.10	4

Source: Appendix- 4.3 (f)

To test whether the difference in the opinions of the direct stakeholders and indirect stakeholder's respondents is significant, the chi-square value is computed. The computed chi-square value is 22.88 and the tabular value at 0.05 level of significance is 9.49 (Appendix 4.4). Therefore, it can be stated that the difference in opinions of both the responding stakeholders are significant. There

is no similar opinion between both responding stakeholders regarding the suggestion to overcome the scarcity of raw materials.

6.2.8 Increases in Sugarcane Cultivation

The responses regarding how the cultivation of sugarcane can be increased have been presented in Table 6.8. It is clear from the table given below that the respondents gave the first priority to 'by giving proper education of cultivation of sugarcane', the second priority to 'by developing the infrastructure', the third priority to 'by giving timely payment and treatment to cultivators', the fourth priority to 'by exemption of government tax like land tax' and the last priority to 'by controlling illegal trade of sugarcane with India'.

Comparatively, the views of the respondents of both type of stakeholders differed in giving priority to 'by giving proper education of cultivation of sugarcane' and 'by giving timely payment and treatment to cultivators'. Direct Stakeholders of sugar mills gave them first and third priority while indirect stakeholders gave third and first priority respectively to the same. However, in giving priority to 'by giving proper education of cultivation of sugarcane', 'by exemption of government tax like land tax' and 'by controlling illegal trade of sugarcane to India' both stakeholders have given them second, fourth and last priority respectively.

Table: 6.8**Increasing of Sugarcane Cultivation**

How increasing of sugarcane cultivation	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. By developing the infrastructure	2.31	2	2.55	2	2.43	2
b. By exemption of government tax	3.10	4	3.06	4	3.08	4
c. By giving the proper education of cultivation	2.28	1	2.56	3	2.41	1
d. By giving timely payment and treatment to cultivators	2.60	3	2.45	1	2.53	3
e. By controlling illegal trade of sugarcane to India	4.71	5	4.38	5	4.54	5

Source: Appendix- 4.3 (g)

The chi-square value is computed to test whether the difference in the opinions of the direct and indirect stakeholder respondents is significant or not. The computed chi-square value is 3.24 and the tabular value at 0.05 level of significance is 9.49 (Appendix 4.4). Therefore, it can be stated that the opinions of both the responding stakeholders are similar and that there is no significant

difference in their opinions with respect to how can the cultivation of sugar cane be increased.

6.2.9 Low Domestic Utilization and Sale of Molasses

The opinions of both the types of stakeholders regarding the reasons for low utilization and sale of molasses have been summarized in Table 6.9. The table reveals that both the groups of respondents gave the first rank to 'lack of technology to convert molasses into ethanol', the second rank to 'lack of awareness of the use of molasses', the third rank to 'unfavourable government policy', the fourth rank to 'lack of market' and the fifth rank to 'higher price of molasses' respectively.

When the views of respondents were compared between these two stakeholders, they gave similar opinion in relation to 'lack of technology to convert molasses into ethanol', 'lack of market' and 'higher price of molasses', because they have given similar priority to them first, third and fifth respectively. But, in other reasons the direct stakeholders gave second and fourth priority to molasses, while the indirect stakeholder respondents gave fourth and second priority respectively to the same reasons.

Table: 6.9
Low Domestic Utilization and Sale of Molasses

Reasons for low domestic utilization and sale of molasses	Direct Stakeholders		Indirect Stakeholders		Overall	
	Mean Value	Rank	Mean Value	Rank	Mean Value	Rank
a. Higher price of molasses	3.63	5	3.55	5	3.59	5
b. Unfavourable government export policy	2.84	2	3.52	4	3.18	3
c. Lack of market	2.96	3	3.51	3	3.24	4
d. Lack of technology to convert molasses into ethanol	2.36	1	2.16	1	2.26	1
e. Lack of awareness of the use of molasses	3.21	4	2.24	2	2.60	2

Source: Appendix- 4.3 (h)

However, the opinions of direct and stakeholder respondents are not similar and that the opinions of both the responding sector differ significantly with this view as the computed value of chi-square (24.20) is greater than the table value (9.49) at 0.05 level of significance (Appendix 4.4).

6.3 Summing Up

To sum up, in relation to survey analysis of the performance appraisal of sugar industries of Nepal, both the groups of respondents have similar opinion in contribution of Nepalese sugar mills, reasons behind running sugar mills in loss or low profit, corrective measures to improve the production of sugar mills and increasing of sugarcane cultivation. In chi-square test, the opinions of both the stakeholders have not been found statistically significant. On the other hand, in survey of factors attributed to lower production of sugar, reasons for running under capacity utilization, suggestions to overcome the scarcity of raw materials and low domestic utilization and sale of molasses (by-product), the opinions of stakeholders of sugar mills and other stakeholders have not been observed similar. Even, the opinions of both stakeholders have been statistically significant in asking the scale of ability of Nepalese sugar industries to meet present demand of sugar 46.88 percent respondents of both sectors opined in 3rd scale (A- Half) out of total 5 scales.

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