UNIT 6 FINANCIAL ANALYSIS OF AGRI-BUSINESS FIRM

Structure

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6.0 OBJECTIVES

After going through this unit, you will be able to:

• explain the balance sheet and income statement and their preparation;

• describe the concept of cash flow and its preparation; and

• define the different financial ratios to judge the financial soundness of an enterprise.

6.1 INTRODUCTION

Many of the agricultural projects include the industrial component in it. There may be a rice mill, dall mill, fruit or vegetable preserving and canning plant, milk processing plant etc. Financial analysis of these agro-industries is similar to other industries. Project analyst in such cases, therefore, is concerned about the analysis of financial statements like balance sheet, cash flow income statement in order to judge the profitability, liquidity position, financial soundness and credit worthiness of the project. Objective in this unit is to develop insight for the same.
A balance sheet shows the firm's financial position i.e. assets, capital and liabilities of the firm as on a specific date. Generally, it is prepared for the last day of a financial year i.e., 31st March. There are different formats in which balance sheet can be prepared. Most commonly, the assets are listed on the left hand side and liabilities on the right hand side in two parallel columns on the page. Sometimes, the assets are shown on the top of the page and liabilities on the bottom of the page. Assets and liabilities plus equity are defined in such a manner that they must always be equal (Assets = Liabilities + owner's equity), hence, the name balance sheet.

6.2.1 Assets

Firms' properties and resources which have future benefits for the company are called its assets. They may represent (i) purchasing power (i.e. cash and bank balance) (ii) claims to be received in future (i.e., book debt, or stock of goods), economic resources which will generate revenues. (i.e. plant and machinery) and (iv) rights (i.e. patent rights, copyright or goodwill). Assets of an enterprise are classified into three major types i.e. current assets, fixed assets, and others.

- **Current Assets**

Assets which are held in the form of cash or are convertible into cash with in accounting period (generally one year) are called current assets. They are also called liquid assets. Examples of current assets include cash and bank balance, accounts receivable, which are amounts owed to the firm by customers and are expected to be converted into cash with in a year, inventories for prompt sale and tradable investment of short term nature such as shares, banks debentures etc.

- **Fixed Assets**

Fixed assets are long term assets whose benefits extend beyond the accounting period. These are durable goods of relatively long life to be used by the enterprise in production of goods and services rather than to be held for sale. Examples are property, plant and equipments and land. Buildings and equipments are often shown in balance sheet at their original cost, and then the accumulated depreciation allowances are deducted. Land by convention is never depreciated.

- **Other Assets**

All those assets which cannot be classified as current assets or fixed assets or investments, can be put under the category of other assets. For example: Expenditures which are incurred for a period longer than the accounting period and do not result in acquisition of assets are referred to a deferred expenditure, and shown as 'other assets' or in miscellaneous expenditure.

6.2.2 Liabilities

A liability is an obligation to pay cash or provide goods or services in the future. A firm, for example, creates liabilities by barrowing funds or by acquiring goods or services on credit. If a company borrows money from, say, the Punjab National Bank, it creates a liability. Similarly, if it buys raw material at credit it creates a liability, it has obligation to pay money in future. The liabilities are of two kinds - current liabilities and long-term liabilities.
Financial Aspects of Project Analysis

- **Current liability**

Current liability is a debt or obligation payable within one accounting period. Generally, they are paid off from cash generated from operation by the conversion of current assets. Examples of current liabilities are accounts payable, short term loans, provision for tax and the current portion of long-term loans and suppliers’ credits that must be paid within the accounting year.

- **Long term liability**

A debt or obligation payable after a year from the date of balance sheet is called a long term liability. They may consist of medium and long terms loans and suppliers’ credits. Loans may be from financial institutions like Industrial Finance Corporation of India (IFCI), Unit Trust of India (UTI) etc., or from the public in the form of bonds or debentures issued by the firm.

- **Owner’s equity**

Owner’s equity consists of claims against the assets of the enterprise by its owners. Owner’s equity could be found by taking difference between total assets and total liability of the firm. It is also called the net worth of the firm.

Table 6.1 provides an example of the balance sheet for a dal mill say as on 31st March 2006. Suppose this is the initial year (year one) of the project then the projected balance sheets are prepared for each year of the project by projecting all entries there in. Various entries in the balance sheets are only illustrative.

**Table 6.1: Balance Sheet of a dal mill as on 31st March, 2006**

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities &amp; Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Current Assets</strong></td>
<td><strong>D. Current liabilities</strong></td>
</tr>
<tr>
<td>Cash &amp; bank balance</td>
<td>Accounts payable</td>
</tr>
<tr>
<td>Rs. 12,000</td>
<td>47,000</td>
</tr>
<tr>
<td>Account receivable</td>
<td>Short term loans</td>
</tr>
<tr>
<td>Rs. 68,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Inventories</td>
<td>Long term loan-</td>
</tr>
<tr>
<td>Rs. 1,67,000</td>
<td>current portion SBI</td>
</tr>
<tr>
<td>Total (A)</td>
<td>Rs. 15,000</td>
</tr>
<tr>
<td>Rs. 2,47000</td>
<td>Supplier’s credit</td>
</tr>
<tr>
<td><strong>B. Fixed Assets</strong></td>
<td>5,000</td>
</tr>
<tr>
<td>Land</td>
<td>Total (E)</td>
</tr>
<tr>
<td>Rs. 50,000</td>
<td>Rs. 73,000</td>
</tr>
<tr>
<td>Building &amp; equipments</td>
<td><strong>E. Long term liabilities</strong></td>
</tr>
<tr>
<td>Rs. 3,50,000</td>
<td>Long-term loan - SBI</td>
</tr>
<tr>
<td>Construction in progress</td>
<td>Rs. 65,000</td>
</tr>
<tr>
<td>Rs. 50,000</td>
<td>Supplier’s credit</td>
</tr>
<tr>
<td>Total (B)</td>
<td>15000</td>
</tr>
<tr>
<td>Rs. 4,50,000</td>
<td>Total (E)</td>
</tr>
<tr>
<td><strong>C. Total Assets</strong></td>
<td>Rs. 80,000</td>
</tr>
<tr>
<td>Rs. 6,97,000</td>
<td><strong>F. Equity</strong></td>
</tr>
<tr>
<td></td>
<td>Share capital</td>
</tr>
<tr>
<td></td>
<td>Rs. 4,00,000</td>
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<tr>
<td></td>
<td>Capital Surplus</td>
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<td></td>
<td>Rs. 1,00,000</td>
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<tr>
<td></td>
<td>Retained earning</td>
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<td></td>
<td>Rs. 44,000</td>
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<tr>
<td></td>
<td>Total (F)</td>
</tr>
<tr>
<td></td>
<td>Rs. 5,44,000</td>
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<tr>
<td></td>
<td><strong>G. Total liabilities &amp; equity</strong></td>
</tr>
<tr>
<td></td>
<td>Rs. 6,97,000</td>
</tr>
</tbody>
</table>
Check Your Progress 1

Note: (i) Use the space below for writing your answers.
(ii) Compare your answers with those given at the end of this unit.

1) What do you understand by the term ‘Balance Sheet’?

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2) Name various elements of balance sheet.

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3) Prepare the balance sheet for an agri-business firm.

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6.3 INCOME STATEMENT

Income statement, also called profit and loss statement, presents the summary of revenue, expenses, profit (or loss) of an enterprise’s operation during the accounting year.

- **Revenue**

It is the amount which enterprise receives from selling goods or providing services to its customers.

- **Expense**

Those expenditures which the enterprise or firm has incurred in earning revenue during the accounting year are called expense.
Financial Aspects of Project Analysis

- **Profit**

It is the figure arrived at when expenses are subtracted from the revenue (profit = revenue - expenses). If expenses exceed revenue, the firm will incur a loss. Profit is determined by matching revenue and expenses during the same accounting period. Thus a profit or loss (or income) statement is a scoreboard of the firm's performance during an accounting period. Table 6.2 depicts the income statements from our exampled dal mill whose balance sheet has been given in Table 6.1.

Table 6.2: Income (Profit and loss) Statement for dal mill for the year ending 31st March, 2006

<table>
<thead>
<tr>
<th>Items</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
</tr>
<tr>
<td>Sale of dal</td>
<td>3,00,000</td>
</tr>
<tr>
<td>Sale of husk</td>
<td>50,000</td>
</tr>
<tr>
<td>Total revenue</td>
<td>3,50,000</td>
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<tr>
<td>Cash Operating Expenses</td>
<td></td>
</tr>
<tr>
<td>Raw material</td>
<td>1,80,000</td>
</tr>
<tr>
<td>Factory variable cost</td>
<td>30,000</td>
</tr>
<tr>
<td>Factory overhead cost</td>
<td>15,000</td>
</tr>
<tr>
<td>Total cost of goods sold</td>
<td>2,25,000</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>1,25,000</td>
</tr>
<tr>
<td>Selling, general and administrative expenses</td>
<td>30,000</td>
</tr>
<tr>
<td>Management fee</td>
<td>15,000</td>
</tr>
<tr>
<td>Total selling, general and administrative expenses</td>
<td>45,000</td>
</tr>
<tr>
<td>Operating profit before depreciation</td>
<td>80,000</td>
</tr>
<tr>
<td>Depreciation (Non-cash operating expenses)</td>
<td>28,000</td>
</tr>
<tr>
<td>Total Operating Expenses</td>
<td>2,98,000</td>
</tr>
<tr>
<td>Operating income (profit)</td>
<td>52,000</td>
</tr>
<tr>
<td>Non Operating Income &amp; Expenses</td>
<td></td>
</tr>
<tr>
<td>Interest received</td>
<td>(-)3,000</td>
</tr>
<tr>
<td>Interest paid</td>
<td>5,000</td>
</tr>
<tr>
<td>Total non-operating expenses</td>
<td>2,000</td>
</tr>
<tr>
<td>Profit (before tax)</td>
<td>50,000</td>
</tr>
<tr>
<td>Income tax @20%</td>
<td>10,000</td>
</tr>
<tr>
<td>Net income (profit) after tax</td>
<td>40,000</td>
</tr>
</tbody>
</table>

Check Your Progress 2

Note:  
(i) Use the space below for writing your answers.  
(ii) Compare your answers with those given at the end of this unit.

1) What is income statement?
2) Name various elements of income statement.

3) Prepare income statement for an agri-business firm.

6.4 CASH FLOW STATEMENT

Cash flow statement is also known as sources and uses of funds statement or sources and application of funds statement or simply funds statement. The cash-flow statement highlights the movements of investment funds over the life of the project. It is the source for measuring the total flow of financial resources into and out of an enterprise during an accounting period and for projecting this total flow into the future. Cash flow statement is prepared from the entries in balance sheet and income statement. A commonly used standard format is given in Table 6.3. The format includes all common items of inflows and outflows. Entries in the table have been obtained from the balance sheet (Table 6.1) and income statement (Table 6.2) of our hypothetical dal mill and have been shown only for one year for understanding. Entries for other years could be obtained from the projected balance sheet and income statement for different years of the project. A cash flow statement contains the details of inflows and outflows for each year of the project.

Table 6.3: Cash Flow Statement for Hypothetical dal mill Showing Standard Entries

<table>
<thead>
<tr>
<th>Items</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources (inflows)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds from operative (operating income before depreciation)</td>
<td>80,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase in equity</td>
<td>5,44,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term loans received</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial institutions</td>
<td>65,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplier’s credit</td>
<td>15,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
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</tbody>
</table>
### Financial Aspects of Project Analysis

#### Total long term loan received
80,000

#### Increase (decrease) in short term loans

#### Interest received
3,000

#### Increase (decrease) in accounts payable and other short term liabilities (except current portion of long term loans received)
47,000

#### Subsidies

#### Total sources of funds (Inflows)
7,54,000

#### Uses (Outflows)

#### Increase (decrease) in gross fixed assets
4,50,000

#### Repayment of long-term loans

<table>
<thead>
<tr>
<th>Source/Expense</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial institutions</td>
<td>15,000</td>
</tr>
<tr>
<td>Suppliers’ credit</td>
<td>5,000</td>
</tr>
<tr>
<td>Others</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Total repayment of long term loans</strong></td>
<td>20,000</td>
</tr>
</tbody>
</table>

#### Interest payments on long term loans

<table>
<thead>
<tr>
<th>Source/Expense</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial institutions</td>
<td>5,000</td>
</tr>
<tr>
<td>Supplier’s of credit</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total interest payments</strong></td>
<td>5,000</td>
</tr>
</tbody>
</table>

#### Loan commitment fees

#### Total debt service = (repayment of loans + interest payment + loan commitment fee)
25,000

#### Increase (decrease) in inventories
1,67,000

#### Increase (decrease) in accounts receivable
68,000

#### Increase (decrease) in other short term assets except cash

#### Income tax paid
10,000

#### Dividends paid

#### Adjustments for items not covered above

#### Total uses (outflows)
7,20,000

### Net funds flow/Net in flows

#### A. Current surplus (deficit)
= total sources (inflows) - total uses (outflows) 34,000

#### B. Opening cash balance

#### C. Cumulative surplus (deficit)
= A+B 34,000

**Note:** The entries for an item will be positive or negative depending upon whether there is increase or decrease in the value.
Check Your Progress 3

Note: (i) Use the space below for writing your answers.
(ii) Compare your answers with those given at the end of this unit.

1) What is cash flow statement.

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Financial Aspects of Project Analysis

- **Inventory Turnover Ratio**

This ratio measures the number of times an enterprise turns over its stock each year and indicates the amount of inventory required to support a given level of sale.

**Formula**

\[
\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}}
\]

For the example *dal* mill

\[
\text{Inventory turnover} = \frac{2,25,000}{1,67,000} = 1.347
\]

For agricultural processing industries generally the inventory turnover is relatively low because of seasonal nature of production. A low turnover ratio may mean that a company with large stocks in hand may find it difficult to sell its product, and this may be an indicator of inefficient management of inventory. This may, however, also mean that large stocks must be kept to ensure that production schedules are met. A low ratio means that a sizeable amount of funds are tied up and a high turnover ratio may on the other hand mean that the enterprise is able to recover its inventory investment quickly and indicates quick demand for its products. This may also mean that the firm is deficit of funds and cannot afford to maintain sufficient inventory implying that it may be forced to forgo sales opportunities.

- **Operating Ratio**

The operating ratio is an indicator of the ability of the management to control operating costs, including administrative expenses. This ratio is very important to compare the over time performance of an enterprise or for the comparison with similar industries.

**Formula**

\[
\text{Operating ratio} = \frac{\text{Operating expenses}}{\text{Revenue}} \times 100
\]

For the example *dal* mill

\[
\text{Operating ratio} = \frac{3,00,000}{3,50,000} \times 100 = 85.71\%
\]

An increasing operating ratio indicates increasing cost of raw material, problem of controlling labour costs, there is waste in the production process or the expenses have not been cut with the declining sales. Increasing operation ratio may also be the indication of increase competition necessitated the reduction in price.
6.5.2 Income Ratios

The long-run financial viability of an enterprise depends on the funds it can generate for reinvestment and growth and on its ability to provide a satisfactory return on investment. The ratios that are commonly used to judge the profitability of a firm are returns to sales, returns on equity and returns on assets. They are individually discussed below.

- **Return on sales**

  The return on sales shows how large an operating margin the enterprises have on its sales.

  **Formula**

  \[
  \text{Return on sales} = \frac{\text{Net income}}{\text{Revenue}} \times 100
  \]

  For the example *dal* mill

  \[
  \text{Return on sales} = \frac{40,000}{3,50,000} \times 100 = 11.428\%
  \]

  The lower the returns on sales mean lower operating margin and indicates thus that greater must be the sales to have an adequate return on investment. The ratio is used to compare the firm in the same industry/sector or comparing the results of past operation and future projections.

- **Return on equity**

  It is obtained by dividing the net income after taxes by equity.

  **Formula**

  \[
  \text{Return on equity} = \frac{\text{Net Income}}{\text{Equity}} \times 100
  \]

  For the example *dal* mill

  \[
  \text{Return on equity} = \frac{40,000}{5,44,000} \times 100 = 7.35\%
  \]

  Return on equity is one of the most important ratios and is frequently used because it is one of the main criteria by which entrepreneurs are guided in their investment decisions. It is indicative of incentives for individual entrepreneur.

- **Return on assets**

  Returns on assets is the operating income divided by the assets.
Financial Aspects of Project Analysis

**Formula**

\[
\text{Return on assets} = \frac{\text{Operating Income}}{\text{Assets}} \times 100
\]

For the example *dal mill*

\[
\text{Return on assets} = \frac{80,000}{6,97,000} \times 100
\]

\[
= 11.477\%
\]

Return to assets ratio explains the earning power of the assets of an enterprise which is vital for the success of an enterprise.

### 6.5.3 Credit Worthiness Ratios

These ratios indicate the degree of financial risk involved in the enterprise, thus are important guides to the inventors. They are also, helpful in indicating about the entrepreneur’s financial need and suitable terms and conditions. They are used by creditors to judge the credit worthiness of debtors. Following are the important ratios under this group.

- **Current ratio**

  **Formula**

  \[
  \text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}
  \]

  For the example *dal mill*

  \[
  \text{Current ratio} = \frac{2.47,000}{53,000}
  \]

  \[
  = 4.66
  \]

  For a credit agency the current ratio indicates the margin the enterprise has for its current assets to shrink in value before it faces difficulties in meeting its current obligations. A rule of thumb applied to the current ratio is that it to be around 2. If the ratio drops to near one the enterprise is thought to be in an unstable position.

- **Debt – equity Ratio**

  **Formula**

  \[
  \text{Debt-equity ratio} = \frac{\text{Long term liabilities}}{\text{long term liabilities + equity}}
  \]

  and

  \[
  \text{Equity} = \frac{\text{Equity}}{\text{long term liabilities + equity}}
  \]
Means debt equity ratio can be calculated as the proportion that longterm liabilities have to total debt and equity and, the proportion that equity has in the total debt and equity of the enterprise.

For our example *dal* mill

\[
\text{Debt equity ratio} = \frac{1,00,000}{1,00,000 + 5,44,000} = 0.161
\]

and

\[
\frac{5,44,000}{1,00,000 + 5,44,000} = 0.84
\]

That means the debt equity ratio is 16 to 84 per cent implying that of the total capitalization in the enterprise, 16 per cent is debt and 84 per cent in equity. There is no good rule of thumb for debt-equity ratio. In newly established firms, equity ideally should exceed the debt, but such a conservative rule may not be appropriate in many developing countries, where equity capital is scarce.

If the enterprise is in the public sector, with a high proportion of the debt held by public sector agencies, the debt equity ratio may lose some of its importance because of the presumption that, if the company fall on hard time, it will be possible to re-negotiate some portion of the debt held by public agencies.

In agricultural projects, enterprises are likely to need a strong equity base because they process or sell commodities that may sharply fluctuate in price and that are subject to adverse weather conditions or a fall in productivity.

- **Debt-service coverage ratio**

This is considered the most comprehensive ratio of credit worthiness and is worked out as:

**Formula**

\[
\text{Debt service coverage ratio} = \frac{\text{Net income + depreciation + Interest paid}}{\text{Interest paid + Repayment of long term loan}}
\]

For our example *dal* mill

\[
\text{Debt Service Coverage Ratio} = \frac{40000 + 28000 + 5000}{5000 + 20000}
\]

\[
= \frac{73000}{25000}
\]

\[
= 2.92
\]

The debt service coverage ratio could also be calculated on a before tax basis i.e., taking income figure before the payment of tax. Those who use the after-tax basis for calculation of debt service coverage argue that taxation is a routine and unavoidable aspect of doing business. Those who prefer before tax basis argue that debt service coverage should be seen as the ability of funds from operations to satisfy debt obligations before such tax shields as depreciation and other ...
cash charges are applied to reduce taxable profits. The viewpoint adopted by the analyst will depend upon whether the firm is in public sector or private sector.

In case of debt service coverage ratio also it is difficult to put forward a rule of thumb. Each element of the ratio is to be looked at to judge the likely change there in from the projected amount. A declining trend in the debt service coverage ratio in a projected account might indicate an over ambitious expansion. A persistently low ratio, on the other hand, might indicate that considerations should be given to changing the credit terms to increase the repayment period.

---

Check Your Progress 4

Note: (i) Use the space below for writing your answers.
(ii) Compare your answers with those given at the end of this unit.

1) Classify important Financial ratio.

2) Calculate financial ratios for the agri-business firm whose balance sheet and income statement you have prepared under check your progress 1 and 2 above.

---

6.6 FINANCIAL RATE OF RETURN

Financial rate of return is a very useful financial measure used in project analysis. The three different variants of financial rate of return that are commonly used will be discussed here. They differ only in the stand point from which the calculation is made. They are the financial rate of return to equity, the financial rate of return to equity after taxes and the financial rate of return to all the resources.

Incremental net benefit

From the projected income statements and sources and uses of funds (the cash flow) statement for an enterprise in the form we have discussed in previous sections, the incremental net benefit stream determined for the project to calculate the financial rate of return. For calculating incremental net benefit, first we add all inflows and outflows for each year of the project and also under the situation
The difference between the inflows and outflows for different years of the project gives us "net benefit" stream with the project. Then deducting from this the without project net benefit we obtain the "incremental net benefit stream" for the project. A general format for deriving incremental net benefit is illustrated in Table 6.4. Calculation of incremental net benefit before financing, incremental net benefit after financing before tax and incremental net benefit after financing after tax can easily be grasped from the perusal of the Table 6.4.

Calculations of rates of returns are based on incremental net benefit flow. In rate of return calculations we have to determine the actual cash flows and outflows of the project for each year of the project and incorporate them in the incremental net benefit. Non cash receipts and expenditures are omitted in this process. An investment made in a year will reduce the net benefit for that year, and revenue realized in a year will be reflected in the same year and will increase the net benefit for that year. Since the projected accounts are prepared for the whole life of the project inclusion of depreciation to allow on an annual basis the capital value consumed during the year is not required.

Table 6.4: Derivation of Incremental Net Benefit: A General Format

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Without Project</th>
<th>Project Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1. In flows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. revenue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. subsidies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. total in flows (A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Outflows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. cash operating expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. selling, general and administrative expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. duties and indirect taxes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. increase and decrease in gross fixed assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. increase decrease in inventories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total outflows (B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Net benefit before financing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. incremental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Financing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. longterm loans received</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. increase (decrease) in short term loans</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Financial Aspects of Project Analysis

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>c.</td>
<td>interest received</td>
</tr>
<tr>
<td>d.</td>
<td>increase (decrease) in account payable and other short term liabilities</td>
</tr>
<tr>
<td>e.</td>
<td>repayment of long term loans</td>
</tr>
<tr>
<td>f.</td>
<td>interest payments</td>
</tr>
<tr>
<td>g.</td>
<td>loan commitment fee</td>
</tr>
<tr>
<td>h.</td>
<td>decrease (increase) in accounts receivable</td>
</tr>
<tr>
<td>i.</td>
<td>net financing</td>
</tr>
</tbody>
</table>

### 5. Net benefit after financing
- **a.** total
- **b.** incremental

### 6. Income taxation
- **a.** income taxes paid

### 7. Net benefit after financing and taxes
- **a.** total
- **b.** incremental

* Incremental net benefits are obtained by subtracting from the net benefits in a year with project from without project situation.

### Financial rate of return to all resources engaged (FRRARE)

It's a measurement of financial viability of the enterprise. It is calculated on the basis of incremental net benefit before financing. It is calculated using following method.

\[
FRRARE = \frac{\text{Sum total of the present value of incremental net benefit before financial (INBBF) stream}}{\text{Sum total of present value total uses of funds (UF) stream}} \times 100
\]

\[
\frac{\text{INBBF in Year 1} \times (1+i) + \text{INBBF in Year 2} \times (1+i)^2 + \text{INBBF in Year 3} \times (1+i)^3 + \ldots + \text{INBBF in Year n} \times (1+i)^n}{\text{UF in Year 1} \times (1+i) + \text{UF in Year 2} \times (1+i)^2 + \text{UF in Year 3} \times (1+i)^3 + \ldots + \text{UF in Year n} \times (1+i)^n} \times 100
\]

Where:  
- **i** = discount rate  
- **n** = life of the project in years

This ratio thus measures the per cent rate of return on all resources used by the entrepreneur over the life of the project. Higher the value more will be the viability of the project.
Financial Analysis of Agri-business Firm

Financial Rate of Return to Equity Before Income Tax (FRREBIT)

This ratio is an important indicator to a potential private investor as well as to a public sector enterprise of the efficiency of use of its resources. This ratio helps to judge the attractiveness of the proposed investment to potential investors and to determine if the financial plan will give rise to undue windfall profits. It may also help in deciding what special tax holiday or other exemptions may be justified. For this ratio to be calculated we need information on equity available from the balance sheet and the incremental net benefit after financial to be calculated as per format in Table 6.4. To have the incremental net benefit after financing, we add or subtract the financing elements shown in sources and uses of funds statement of the enterprise. Note from Table 6.4 that the accounts payable and accounts receivable have been included under financing. This is because decrease in accounts receivable increases the funds available to the enterprise, it is decreases in accounts receivable that are to be added to obtain the net financing. Making algebraic total of all relevant entries will give the net financing. Then by subtracting net financing from the net benefit before financing, yields the total net benefit after financing. Finally, subtracting from this the without project net benefits we get the incremental net benefit after financing. The calculation of financial rate of return to equity before income tax is done as detailed below.

\[
FRREBIT = \frac{\text{Sum total of the present value of incremental net benefit before income tax (INBBIT) stream}}{\text{Sum total of present value of equity (EQ) stream}}
\]

\[
= \frac{\text{INBBIT in Year 1} + \text{INBBIT in Year 2} + \text{INBBIT in Year 3} + \cdots + \text{INBBIT in Year n}}{(1 + i)^1 + (1 + i)^2 + (1 + i)^3 + \cdots + (1 + i)^n}
\]

\[
= \frac{\text{EQ in Year 1} + \text{EQ in Year 2} + \text{EQ in Year 3} + \cdots + \text{EQ in Year n}}{(1 + i)^1 + (1 + i)^2 + (1 + i)^3 + \cdots + (1 + i)^n}
\]

Financial rate of return to equity after tax (FRREAT)

This ratio is found out by considering incremental net benefit after financing and taxes. To determine incremental net benefit after financing and taxes, the income taxes are deducted from the net benefit after financing and then the without project amount. This is the flow that will be received by the equity owners after the tax obligations have been met. This is very important to judge the incentives from an investment. It is calculated as:

\[
FRREAT = \frac{\text{Sum total of the present value of incremental net benefit after financing & tax (INBAFT) stream}}{\text{Sum total of the present value of equity (EQ) stream}}
\]

\[
= \frac{\text{INBAFT in Year 1} + \text{INBAFT in Year 2} + \text{INBAFT in Year 3} + \cdots + \text{INBAFT in Year n}}{(1 + i)^1 + (1 + i)^2 + (1 + i)^3 + \cdots + (1 + i)^n}
\]

\[
= \frac{\text{EQ in Year 1} + \text{EQ in Year 2} + \text{EQ in Year 3} + \cdots + \text{EQ in Year n}}{(1 + i)^1 + (1 + i)^2 + (1 + i)^3 + \cdots + (1 + i)^n}
\]

6.7 LET US SUM UP

Many agricultural projects include the industrial component like a rice mill, dal mill, fruit and vegetable processing plant etc. Financial analysis of these agro-industries is similar to other industries. Therefore, a project analyst must have insight in the analysis of important financial statements like balance sheet, cash flow, income statement in order to judge the profitability, liquidity position, financial soundness and credit worthiness of the project.
A balance sheet in the statement shows assets, capital and liabilities of the firm on a specific date, generally the last date of financial year i.e. 31st March. Income statement on the other hand presents the summary of revenue, expenses, profit (returns) position of an enterprise’s operation during an accounting year. The cash flow statement highlights the movements of investment funds over the life time of the project. It is the source for measuring the total flow of financial resources into and out of an enterprise during an accounting period and for projecting the future cash flow statement.

Various financial ratios are used to interpret meaningfully the financial information contained in balance sheet and profit and loss statement of the enterprise. Important financial ratios, commonly in use, are grouped into efficiency ratios, income ratios and credit worthiness ratios. Inventory turnover ratio and operating ratio are the commonly used efficiency ratios; returns to sales, returns to equity, returns on assets are important income ratios in use; and current ratio, debt equity ratio and debt service coverage ratio are the commonly used credit worthiness ratios.

6.8 KEY WORDS

| Assets | A firm’s properties and resources which have future benefit for the company are called its assets. They may include cash and bank balance, stock of goods, plant, machinery, patent rights, copy rights or good will etc. |
| Expenses | Those expenditures which the enterprise or firm has incurred in earning revenue during the accounting year are called its expenses. |
| Liabilities | A liability is an obligation to pay cash or provide goods or services in future. If for example a firm borrows money from a bank, it creates a liability for it. |
| Profit | It is the figure arrived at when expenses of the enterprise are subtracted from its revenue. If expenses exceed revenue, the firm will incur a loss. |
| Revenue | It is the amount which enterprise receives from selling goods or providing services to its customers. |

6.9 SOME USEFUL BOOKS/REFERENCES


6.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) A balance sheet shows the firm’s financial position i.e. assets, capital and liabilities. Go through section 6.2 and answer.


3) Collect the data from an agri-business firm operating in your area and prepare the balance sheet based on standard format described in Table 6.1 under section 6.2.

Check Your Progress 2

1) Summary of revenue, expenses, profit (or loss) of an enterprise during the accounting year.

2) Revenue, expenses and profit.

3) Procure information from an agri-business firm operating in your area (same firm that is contacted for Ex. 3 in Check Your Progress 1) and prepare income statement as per format given in Table 6.2 under section 6.3.

Check Your Progress 3

1) It is the source of measuring the total flow of financial resources into and out of an enterprise during an accounting period and for projecting this total flow into the future.

2) Prepare the cash flow statement for the agri-business firm whose balance sheet and income statement has been prepared under check your progress 1 and 2 above using format described in Table 6.3 and discussion in section 6.4.

Check Your Progress 4

1) Efficiency ratio, income ratio and credit worthiness ratios.

2) Calculate various financial ratios for the agri-business firm whose balance sheet and income statements have been prepared under check your progress 1 and 2 and interpret the financial position of the firm based on the discussion in section 6.5.