

CHAPTER FOUR

FINANCIAL ANALYSIS OF A FARM BUSINESS

One of the responsibilities a farm business manager has is evaluating and monitoring financial performance. In order to successfully accomplish this task, the manager must decide how the evaluation will be conducted, collect data that accurately reflects the performance of the business, and develop a set of standards or benchmarks for measuring performance. If performance is not satisfactory, management must identify and implement adjustments that will lead to improved performance. Once a farm record keeping system has been established analyzing the records can begin. Decision making can be greatly enhanced by analyzing both production and financial records and their impact on profitability. In this unit you will learn about a number of financial analysis tools that can be used when accurate and complete farm records are available for evaluating and monitoring financial performance of a farm business.

4.1.FINANCIAL ANALYSIS

Financial analysis is one of the roots of management used to carry out its controlling function such as evaluating and monitoring financial performance of a farm business. The financial position and performance of a farm business can be summarized by important financial statements. Information from these statements can be used:

- To make important financing and investment decisions
- To substantiate credit applications
- To derive performance measures for analyzing the farm business
- To develop budgets for planning purposes

Proper interpretation of data presented by the financial statement helps in judging the profitability of operations during given time periods, in determining the soundness of financial condition at a specific date, in determining the soundness of financial condition at a specified date, in determining future potential to meet existing or anticipated credit obligations and in developing performance trends to be used as a basis for future decision making. The term financial statement refers to three basic statements that an accountant prepares at the end of a specified period of time for a business enterprise.

4.2.STEPS OF FARM FINANCIAL ANALYSIS

Efficient managers want to be able to determine the position of a business at any point of time. They also want a basis for evaluating where the business is going on. This helps their control of the business operations overtime. Thus, farm business managers follow the following steps while undertaking their farm business financial analysis.

- a. ***Preparing Proper recording of accounts and activities:*** A systematic recording of information on financial aspects of the farm is essential for farm business analysis and for this purpose, a sound knowledge on book keeping and accounting is essential.
- b. ***Analysis of data:*** The data collected would be useful to construct balance sheet and income statement. Financial ratio analysis would also increase the farm efficiency.
- c. ***Interpretation of the results:*** The financial analysis would indicate the performance of the business and suggest measures for improvement. The interpretation of results would be more useful to understand the performance of the business.

4.3.FINANCIAL ANALYSIS TOOLS

A number of financial analysis tools can be used when accurate and complete farm records are available. These tools include the balance sheet, income statement and projected monthly cash flow statement (including family living expenses). These three financial statements provide information for making short and long term financial decisions.

4.3.1. Balance Sheet or Net worth Statement

A balance sheet is a statement of the financial position of a business at a specific point in time. The balance sheet shows what is owned in a business, what is owed, and the owner's share, or net worth, of the business. By comparing balance sheets over time, the growth or decline of assets, liabilities, and net worth of a business can be determined and evaluated.

The balance sheet shows the amount of investment the owner has in the business. To determine this amount, the assets owned are listed and a value is placed on them. The values of the liabilities of the operation also are listed. The difference between assets and liabilities equals net worth, which represents the owner's equity in the business. The balance sheet is often called a net worth statement. The net worth is equivalent to the value that would be left if all of the

business and debt obligations were paid in full. The relationship of assets, liabilities, and net worth is expressed as follows:

$$\text{Assets} - \text{Liabilities} = \text{Net Worth (Equity)}$$

OR

$$\text{Assets} = \text{Liabilities} + \text{Net Worth (Equity)}$$

Ideally, the balance sheet should separate assets and liabilities into current asset (less than one year of life), intermediate (one to seven years of life) and long-term (longer than seven years of life, mainly buildings and land) categories and should list cost (original cost less depreciation) and market value (current expected sale price) for each. If the assets are more than liabilities it is called net worth or equity and its converse is known as net deficit. The typical balance sheet shows assets on the left hand side and liabilities and equity on the right side. Both sides are always in balance hence the name balance sheet. Net worth is placed on right side, along with liabilities in order to indicate that like any other creditor the farmer has a claim against the farm business equal to the equity amount.

Uses of the Balance Sheet: The purposes of the balance sheet (net worth statement) are;

- ✓ To illustrate the current solvency of the farm business.
- ✓ The basic document of risk bearing ability.
- ✓ It illustrates the financial picture of the firm at a point in time.
- ✓ Give useful evidence of what might be logically expected in the future.
- ✓ Lending agencies use balance sheets to evaluate the financial position of most loan applicants.
- ✓ A balance sheet gives information on how best to meet liabilities.

Preparing a balance sheet: To prepare a balance sheet the prime requisites are total assets, total liability and Net Worth of the farm.

Assets: An asset can be defined as “anything of value in the possession of the farm business or a claim for anything of value in the possession of others”. Assets are those parts of the business that are owned or controlled. As well as any property owned by a person or business, they

include cash, land, buildings, livestock, farm equipment and dairy-related shares. Farm assets can broadly be classified into the following three main categories.

- **Current Assets:** A current asset is cash or other assets that can be quickly converted into cash in the normal business processes within 1 year. The value of current assets may vary greatly over time. Crops may be harvested but held for a better market. Feeder livestock may be purchased or sold, resulting in continual cash flow of funds into the business and out again
- **Working Assets or Intermediate Assets:** The assets which take 2 to 5 years to convert in the form of cash, e.g. machinery, equipment, livestock, tractors, etc are called working assets.
- **Fixed Assets or Long Term Assets:** The assets that are permanent or will be used continuously for several years are called long term or fixed assets. It takes longer time to convert into cash due to verification of records, legal transaction etc. e.g. land, farm buildings, etc.

Liabilities: A liability is defined as, “a claim by others against the farm business, like mortgages and accounts payable”. Liabilities can be classified into:

- **Current Liabilities:** The loans/debts that must be paid in the short run or in very near future e.g. crop loan, other loans, cost of maintenance of cattle, etc are called current liabilities.
- **Intermediate Liabilities:** The loans which are due for the repayment within a period of 2 to five years, e.g. livestock loans, machinery loans, unsecured loans are called intermediate liabilities.
- **Long Term Liabilities:** The loans which are due for the repayment after five or more years e.g. tractor loan, orchard loan, land development loan, unsecured loans, etc. are called long term liabilities

Example Balance sheet for year ending 31st December, 2019

<i>NO.</i>	<i>Assets</i>	<i>Amount</i>	<i>NO.</i>	<i>Liabilities</i>	<i>Amount</i>
1	Current assets	211,982	1	Current Liabilities	261,221
2	Working Assets	822,036	2	Intermediate Liabilities	133,715
3	Fixed Assets	1,904,000	3	Long Term Liabilities	511,523
Total assets		2,938,018	Total Liabilities		906,459

	Net worth= Assets – Liabilities = 2,938,018 – 906,459 = 2,031,558
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Net Worth (Total Assets Less Total Liabilities): It reflects the owner’s equity in the business and in other personal property. The net worth statement is one of the primary documents used by lending agencies in evaluating requests for new loans or extension of existing loans. It is also useful for calculating financial ratios of the farm business.

4.3.2. Income Statement (profit and loss statement)

Income statement is also called as profit and loss statement, which reflects the operational position of the firm during a particular period. It is defined as a summary of receipts and gains minus expenses and losses during a specified period or over time. It states the source of firm’s incomes, describes the nature of the expenses, and shows the net profit earned (or net loss incurred) during an accounting period. Income statement indicates how well the farm business has performed during the accounting period. This is an important financial record because it measures the financial progress and profitability over a period of time. The income statement shows the income earned during the accounting period and the expenses that are properly assignable to that period. The difference between the two is net income or net loss. There are three major sections of the income statement, namely receipts, expenses and adjustments. The adjustments are necessary to convert cash flow to annual earnings by including inventory change, accounts payable and receivable and depreciation.

- **Gross farm operating receipts:** These include cash receipts from sale of farm produce, government payments and other sources of cash.
- **Gross farm operating expenses:** These include outlays for seed, fertilisers, chemicals, machine hire, feed, veterinary bills, interest and other cash operating costs. These do not include finance costs to service loans.
- **Adjustments:** These affect farm earnings but are not reflected in cash transactions. They include (1) value of farm products consumed by the farm family (to accurately reflect total farm production), (2) changes in the farm inventory (such as feed and fertilisers reserves, livestock and land and improvements), (3) changes in accounts payable and receivable (to accurately reflect the annual farm finances) and (4) depreciation. The

adjustments are calculated by summing the first three items then subtracting the fourth item.

Key measures from income statements

Gross farm income (GFI) is the sum of the cash generated from the sale of farm produce and the changes in inventories (stock and land), whereas net farm income (NFI) takes into account farm operating costs.

- *Gross farm income = (farm cash income) + (adjustments), in local currency units*
- *Net cash farm operating income = (gross farm operating receipts) - (gross farm operating expenses)*
- *Net farm income = (gross farm operating receipts) - (gross farm operating expenses) + (adjustments)*

NFI is the 'bottom line' of the farm business and represents return to unpaid farm family (imputed) labour, equity capital and management. Over the long term, net farm income is the amount available for discretionary use by the family and for business development. If a withdrawal for family living is made, then this represents the amount available for business expansion and risk taking.

Example Income Statement for year ending 31st December, 2019

Farm Business Expenses:	Value	Farm Business Receipts:	Value
Operating Expenses		Revenue from Crops	
<i>Purchased Feed</i>	21,583	Crop Cash Sales	503,518
Fertilizer	90,685	Ending Crop Inventory (+)	83,250
Hired labour	40,907	Beginning Crop Inventory (-)	96,413
Fuel and Oil	47,775	Other Crop Income	0
Repairs	87,406		
Seeds	67,074		
Miscellaneous Expenses	142,000		
Sub-total	497,430	Sub-total	490,356
Fixed Expenses		Revenue from Livestock	
Taxes	19,405	Livestock and Milk Cash Sales	141,045
Interest Expenses	41,748	Ending Livestock Inventory(+)	332,950
Depreciation	29,109	Beginning Livestock Inventory (-)	332,900
		Other Livestock Income	54,881
Miscellaneous Expenses	0	Value of farm production	664,749
Sub-total	90262	Sub-total	195976

Total Farm Expenses	587,692	Gross Farm Revenue	686,332
		<i>Value of farm production</i>	664,749
Net farm income = Gross Farm Revenue – Total Farm Expenses			
= 686,332 – 587,692			
= 98,640			

4.3.3. Cash flow statement or Cash Flow Summary

Cash flow statement is a summary of cash inflows and cash outflows of an agri-business organization in a particular period, say a season or a year. It is usually prepared for the future, hence the name cash flow budget. It is also called as the sources and uses of funds or flow of funds statement. The cash flow statement is a measure of changes in cash the business has on hand from season to season. It records or projects all cash receipts less all cash disbursements. A business may use the cash flow statement as a record of what has occurred to cash or as a projection into the future to determine future needs for cash or as both. The cash flow statement is accurate when it is a record of past receipts and disbursements and an estimate when it is projected for future months. Both the cash inflows and out-flows are summarized over a given period of time. In a cash flow statement the total cash inflows must equal to the total cash out flows. The total cash inflows include;

- Total cash available which excludes borrowings,
- New operating loans, and
- New medium and long-terms loans as well as the consumption loan.

Likewise, the total cash outflows consist of;

- Total cash required which excludes principal repayments,
- Principal repayments and
- Ending cash balance.

Merits

- It helps to assess the time at which the funds are required
- It helps to identify the sources from which funds can be raised.
- It helps to identify the purpose for which funds are needed.
- It helps to identify the need of sale and purchase of capital assets.
- It helps in working out the time and amount of repayment of loan, etc.

4.4.Financial Ratios Analysis

Financial aspects of the farm business have rapidly increased in importance in recent years. Farm business size has increased. Cash expenses have gone up. Larger amounts of credit are being used. As the size of an operation increases and credit use is expanded, financial management becomes more critical to the success of the operation. More sophisticated accounting systems are needed to furnish farm financial management information. This calls for tools to help interpret accounting figures. This is where financial ratios come in.

4.4.1. Meaning of Financial Ratio

A financial ratio (or accounting ratio) refers to a relative magnitude calculated using two selected numerical values extracted from the financial statements of a business. The financial ratio is often used in accounting and finance in evaluating the overall financial condition of the firm. Financial ratios can be employed to assess the ability of the firm such as the small business to meet the repayment of its capital funds.

A financial ratio is simply a comparison of two measurements of a business to each other. For example, a measurement of income may be compared to a measurement of size. The two measurements are expressed in terms of a ratio of one number to another number. The measurements can also be expressed in terms of the percent that one is to another. The figures (or values) that are normally used in calculating financial ratios are derived from income statement, balance sheet, and statement of cash flows.

4.4.2. Different Types of Financial Ratios

Financial ratios can be put to many uses. They may be used by a farm operator or business manager in managerial analysis; they also may be used by a lending agency in credit analysis; and they may be used by an investor in investment analysis. A number of useful ratios have been found to be indicators of farm financial progress and risk-bearing ability. These ratios can be grouped into five categories:

- Liquidity
- Solvency

- Profitability
- Financial Efficiency
- Repayment Capacity

A. Liquidity Ratios:

It is also called as short-term ratio. Liquidity measures the ability of a farm business to meet financial obligations as they come due in the ordinary course of business, without disrupting the normal operations of the business. These ratios indicate a company's ability to pay its short-term bills. A ratio of greater than one is usually a minimum because anything less than one means the company has more liabilities than assets. A high ratio indicates more of a safety cushion, which increases flexibility because some of the inventory items and receivable balances may not be easily convertible to cash. The most conservative liquidity ratio is the cash ratio. Cash and short-term marketable securities represent the most liquid assets of a firm with which payments for short claims can be met. There are two common efficiency ratios that are calculated under this group such as follows:

Current ratio: It measures the ability of the farm to meet its current liabilities. This ratio indicates the extent to which current assets, if liquidated, would cover the current liabilities, i.e., the value of current assets for each birr of current liability. Current ratio is given by;

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

A low current ratio indicates that the enterprise may not be able to pay its future bills on time especially, if a it is slow in debt collection. The higher current ratio means more liquidity exists in the farm business. This ratio must be more than 1.0 (100%) in order for the business to not experience short-term repayment problems. A business that lacks liquidity is not a stable business, even though it may be profitable.

Example: using data from the balance sheet before, the current ratio of the farm is calculated as $211,982 \div 261,221 = 0.81$ (0.81:1). In other words, this operation has \$0.81 of current assets for each \$1.00 of current liabilities owed to others.

Working capital: Working capital quantifies the amount of money readily available to operate the business, being what is available after meeting debts. This indicates the ability of the business to meet cash obligations as they come due without having to borrow money or cash in some of its medium and long-term capital. It is then a measure of liquidity or the ability to borrow further money. As a rough guide, it should be close to expected net farm income otherwise there may be insufficient investment in the farm.

$$\textit{Working capital} = \textit{Current assets} - \textit{Current liabilities}$$

Acid test ratio (ATR) or quick current ratio: Quick assets are defined as current assets excluding inventories. Acid test ratio is also known as quick ratio, which is a stringent measure of liquidity. It is based on those current assets, which are highly liquid, i.e., inventories are excluded from current assets, as they are the least liquid component of current assets. The difference between current ratio and acid test ratio is the elimination of inventories in current assets used in acid test ratio. If a firm's cash marketable securities and accounts receivable are more than sufficient to meet its current liabilities, then inventories may be viewed as a buffer to absorb any subsequent deficiency in the receivables, such as unexpected bad debt. Acid test ratio is given by;

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

As a general rule quick ratio is 1:1 is accepted as ideal.

B. Solvency Ratios

It is also called as leverage ratio, which measures the long-term obligation of the business concern. This ratio helps to understand, how the long-term funds are used in the business concern. Solvency measures the amount of debt and other expense obligations used in the farm business relative to the amount of owner equity invested in the business. Solvency ratios provide an indication of the business's ability to repay all financial obligations if all assets were sold, as well as an indication of the ability to continue operations as a viable farm business after a financial adversity, such as a drought or low commodity prices. Financial ratios that measure solvency are calculated from balance sheet data, and are:

- Debt to Asset Ratio
- Equity to Asset Ratio
- Debt to Equity Ratio

Debt to Asset Ratio: The Debt/Asset Ratio compares total farm liabilities to the value of total farm assets, and therefore measures financial position. The debt to asset ratio measures the degree to which farm assets are financed by debt and is a second measure of solvency. It is sometimes called the net capital ratio and is a good way of expressing risk exposure of the farm business. This ratio expresses what proportion of total farm assets is owed to creditors. The ratio is one measure of the risk exposure of the farm business; thus, is important in evaluating the financial trend of the business. The goal of some farm business operators is to approach a debt-free operation. A continual lowering of this ratio is a trend in that direction. It also shows the percentage of the assets that are financed by outside creditors. The higher the ratio, the greater the risk exposure of the farm business. The ratio is calculated by;

$$\text{Debt to Asset ratio} = \frac{\text{Total Liability}}{\text{Total assets}}$$

Example: $906,459 \div 2,938,018 = 0.309$ (30.9%)

Debt to equity ratio: The Debt/Equity Ratio measures financial position and reflects the extent to which farm debt capital is being combined with farm equity capital. The higher the ratio value, the more total capital has been supplied by creditors and less by the owner. This ratio is given by;

$$\text{Debt to Equity ratio} = \frac{\text{Total liability}}{\text{Equity}}$$

Equity to asset ratio: This ratio indicates the proportion to the owner's equity invested in assets. The Equity/Asset Ratio measures the proportion of total farm assets financed by the owner's equity capital, and therefore indicates financial position. The higher the ratio value, the more total capital has been supplied by the owner and less by creditors. This ratio is given by;

$$\text{Equity to asset ratio} = \frac{\text{Equity}}{\text{Assets}}$$

C. Profitability Ratios

Profitability measures the extent to which a farm business generates a profit from the use of land, labor, management, and capital. Financial ratios and values that measure profitability are calculated from balance sheet and income statement data, and includes,

- Capital turnover ratio
- Rate of Return on Farm Assets
- Rate of Return on Farm Equity
- Operating Profit Margin Ratio
- Net Farm Income

Rate of Return on Farm Assets Ratio: this ratio is often used as an overall index of profitability of the farm business. The higher the ratio value is, the more profitable the farm business. This ratio is calculated by,

$$\frac{\text{Rate of Return on Farm Assets}}{\text{Rate of Return on Farm Assets}} = \frac{\text{Net Farm Income} + \text{Interest Expense} - \text{Unpaid Family Labor}}{\text{Average Total Farm Assets}}$$

Rate of Return on Farm Equity Ratio: The Rate of Return on Farm Equity Ratio provides a measure of the return on the owner's equity capital employed in the farm business. The higher the ratio value is, the more profitable the farm operation.

Operating Profit Margin Ratio: The Operating Profit Margin Ratio measures profitability in terms of return per dollar of value of farm production. A farm business has two ways to increase profits — either by increasing the profit per unit produced, or by increasing the volume of production if the farm business is profitable. A relationship exists between the rate of return on farm assets, the asset turnover ratio, discussed below, and the operating profit margin ratio. If the asset turnover ratio is multiplied by the operating profit margin ratio, the result is the rate of return on farm assets.

Net Farm Income: Net Farm Income is calculated by matching farm revenues with farm expenses incurred to create those revenues. Net farm income is typically computed on a before-tax basis. It comes directly off of the income statement without any additional calculations. Example: \$98,640

D. Efficiency Ratios,

Financial efficiency measures the intensity with which a farm business uses its assets to generate value of farm production and the effectiveness of production, purchasing, pricing, financing, and marketing decisions. Financial efficiency ratios are calculated from balance sheet and income statement data, and include the following ratios:

- Asset Turnover Ratio
- Operating Expense Ratio
- Depreciation Expense Ratio
- Interest Expense Ratio
- Total Expense Ratio
- Net Farm Income Ratio

Asset Turnover Ratio: The Asset Turnover Ratio measures how efficiently farm assets are being used to generate revenue. The higher the value of the ratio, the more efficiently assets are being used to generate revenue. The value of this ratio will vary by type of farm operation and by the percentage of acres owned.

$$\text{Asset Turnover Ratio} = \frac{\text{Value of Farm Production}}{\text{Average Total Farm Asset}}$$

Example: $664,749 \div 2,938,018 = 0.2263$ (22.63%)

The five operational ratios reflect the relationship of expense and income categories to Gross Farm Revenue. The sum of the first three operational ratios equals the total expense ratio. The sum of total expense ratio and net farm income ratio is one.

Summary of Financial tests and ratios from the Balance Sheet

The financial ratio analysis can also be done based on balance-sheet data which monitors the financial structure of the farm business or farm operator. These financial ratios provide information pertaining to extent of risk involved in lending to the farmer and can be divided as (a) liquidity ratios, and (b) solvency ratios.

Derivation of Test Ratios from the Balance Sheet

NO.	Ratio/indicators	Formula for computation	What it signifies/tells or rationale	Desirable value and indication
1	Current Ratio	$CR = \frac{\text{Total current assets}}{\text{Total current liabilities}}$	This reflects liquidity within one year's time.	Ratio > 1 indicates a favorable run of the farm business
2	working Ratio	$WR = \frac{TCA + TIA}{TCL + TIL}$	This reflects liquidity position of farm business over intermediate period of time ranging from 2 to 5 years.	Ratio > 1 indicates sound running of the farm business having adequate risk-bearing ability
3	Net Capital Ratio	$NCR = \frac{\text{Total Assets}}{\text{Total Liabilities}}$	This ratio measure the overall solvency position of the farmer borrowers and indicates the long term liquidity position of the business	Ratio > 1 indicates that the funds of institutional agencies are safe
4	Current Liability Ratio	$NCR = \frac{\text{current liabilities}}{\text{Net worth.}}$	This ratio indicates the farmer's immediate financial obligations against the net worth	Ratio <1 indicates a healthy performance of the farm business and over the years should become smaller
5	Debt Equity Ratio or Leverage Ratio	$DER = \frac{\text{Total liabilities}}{\text{Net worth.}}$	This ratio presents the capacity of the farmer to meet the long term commitments.	A consistently falling ratio indicates a very encouraging performance of farming & ability of the farmers to reduce dependence on borrowing.
6	Equity Value Ratio	$EVR = \frac{\text{Owners equity}}{\text{Value of total assets}}$	It signifies the strength of farm business.	Improvement in the ratio over the years makes it clear that the financial strength of farm business is improving i.e. the risk capital is declining.

Summary of Financial tests and ratios from Income Statement

These ratios can be divided into two categories viz; (a) Efficiency ratios, which relate expenses to gross income, and (b) Profitability ratios, which relate income to the capital investment.

Analysis/Derivation of Financial Test Ratios from Income Statement

NO.	Ratio/indicators	Formula for computation	What it signifies/tells or rationale	Desirable value and indication
1	Operating Ratio	OR= Total operating expenses/Gross Income	This tells about the magnitude of working expenditure incurred to derive a rupee of gross income.	This ratio should be < 1
2	Fixed Ratio	FR= Total fixed expenses/Gross Income	This tells about the magnitude of fixed expenditure incurred to derive a rupee of gross income.	This ratio should be < 1
3	Gross Ratio Or input output ratio.	GR=Total expenses/Gross Income	This tells about the magnitude of total expenditure incurred to realize a rupee of gross income.	This ratio should be < 1
4	Capital turnover ratio	CTR= Gross Income/Average capital invested	This tells about the gross returns earned for each rupee of average capital invested over the year.	Should be as high as possible but > 1
5	Rate of return on investment	RoROI= Net returns to capital/Average capital invested Net return to capital = Net farm income + interest paid during the year – unpaid family wages	This gives the net returns earned for each rupee of average capital invested.	Should be as high as possible but > 1

