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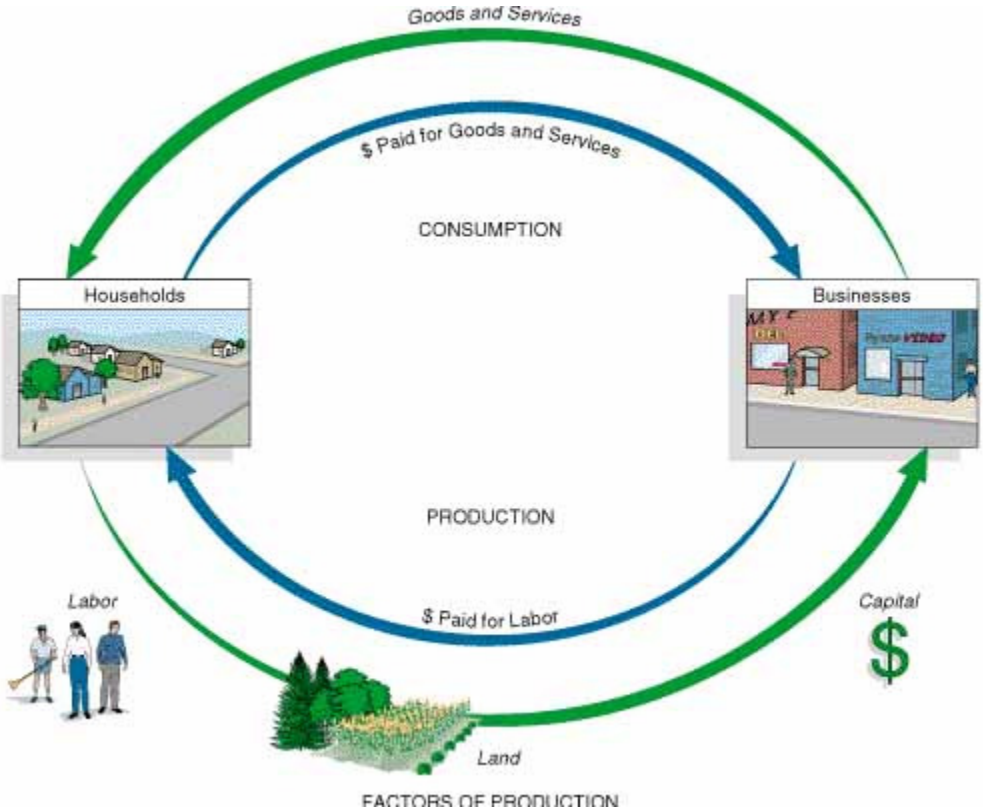
Agriculture and Natural Resources

Farm Management Tools

FINANCIAL RATIOS FOR ANALYZING THE FARM BUSINESS



Etaferahu Takele, Area Agricultural Economist/Farm Management

University of California Cooperative Extension, Southern California

21150 Box Springs Road, Moreno Valley, CA 92557
Tel. 951-683-6491 Ext. 221
Fax: 951-788-2615
E-mail: ettakele@ucanr.edu
http://ceriverside.ucanr.edu

FINANCIAL RATIOS FOR ANALYZING THE FARM BUSINESS

Etaferahu (Eta) Takele, Area Farm Management Economist,
University of California Cooperative Extension

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The farm record book is a very important tool in farm management. The data in the farm records summarized and converted into a set of analytical criteria provides measures of the farm's performance including comparing the farm with similar farm operations as well as looking at the farm's own performance over time. This guideline discusses how a few financial ratios can be used to analyze the farm business.

Three financial statements—the Balance Sheet, Income Statement, and Cash Flow Statement provide the basic information for developing financial ratios that are used to 1) assess the financial strength and 2) monitor the financial performance of the business.

Definition

1. *The Balance Sheet* is a listing of all farm assets and liabilities. Assets include any property or securities that are controlled or belong to the farm. Farm liabilities include all liens or financial obligations against the farm's assets.
2. The difference between the assets and liabilities provides *net worth or equity*.
3. *The Cash Flow Statement* is the summary of cash available and cash required.
4. *The Income Statement* is the summary of revenues and expenses.

The Balance Sheet and the Cash Flow Statements provide liquidity and Solvency ratios which are used to assess the financial strength of the business.

The Income Statement provides profitability and efficiency ratios reflective of the performance of the business. As with all financial statements and ratios, assets and liabilities valued at the current market value will be better indicators than when valued cost (original value) basis.

Liquidity Analysis

Liquidity analysis shows the ability of the business to convert assets to cash to meet current commitments without disrupting the ongoing operation of the business. There are several ways for liquidity analysis.

1. Cash Flow Statement: Assessing the liquidity position by looking at the cash flow Statement i.e. the cash available and the cash needs on a monthly basis.
2. Current Ratio: This method is the most frequently used measures of liquidity. It is calculated as:

   Current Ratio = Current Assets/Current Liabilities

This ratio measures the number of dollars available to service each dollar of debt. For example, if the ratio is 2:1, there are $2 of liquid assets for each $1 of current debt. However, this ratio should be carefully interpreted because some current assets are more liquid than others.

For example, one farmer may hold most of the current assets in cash, savings deposit, and very liquid inventories. Another farmer may hold more of his current assets in less liquid form such as cash invested in growing crops. Thus, while the two farmers may have the same current ratio, the first farmer may be in a better position than the second farmer to meet an unexpected expense. For this reason the acid test ratio is often computed.

3. Acid Test Ratio is also referred to as the "quick" ratio. It is identical to the current ratio except inventories, supplies and cash invested in growing crops are excluded from the numerator.

Solvency Analysis

Solvency is a measure of financial security. A business is said to be solvent if all debts could be covered by liquidating all assets. The more that is left over after covering debts, the more the business is considered solvent. Solvency measures include:

1. Leverage Ratio = Total Labilities/Net Worth = Debt/Equity
   If the ratio exceeds 1.0, the creditors have more invested in the business than the owner.

2. Net Capital Ratio: A supplemental analyses to the leverage ratio that shows the relationship between total assets and total liabilities.

   Net Capital Ratio = Total Assets/Total Liabilities

   A value greater than 1.0 of Net Capital Ratio implies that liquidation of the business would produce enough cash to pay off all creditors.

   This ratio is also used as a measure of risk bearing capacity. It shows the percentage that the value of assets could decline and still cover liabilities. For example, a value of 1.40 says that for each $1 of debt, there is $1.40 in assets. This means that assets could decline by up to 40% and the business would still remain solvent.

3. Debt-to-Asset Ratio is the inverse of the net capital ratio. It provides the percentage of asset value that would be needed to retire all debts.

Profitability Analysis

Profitability analysis helps to answer questions such as what interest or rate of return was made on the investment? How much returns was realized for labor and/or management?

Profitability analysis is evaluation or analysis of the net farm income. Net farm income is the value of farm production plus gain (loss) from the sale of intermediate-and long-term farm assets minus farm expenses. In some cases, the net farm income may not have accounted expenses for some resources. In those cases, the net farm income is defined as returns to those resources.

Some of the resources that farms usually may not have included in the net farm income calculation are: 1) unpaid labor (operator and/or family), 2) unpaid management, 3) debt capital, and 4) equity capital. It is good to limit the resources to one or two. Some suggested ways of calculating values of resources include:

1. Unpaid Labor: The total number of hours spent by the operator and each family member in the farm multiplied by the expected wage rate. Expected labor wage rates can be the same as what the farm or other farms pay for hired labor. Wages can also be obtained from the following source: http://www.bls.gov/oes/current/oes452099.htm.
2. Unpaid Management: The total number of hours spent by the operator and family members in management alone multiplied by the management wage rate. Expected management wages rates can be the same as what other farms pay for management skills. Other sources also include: http://www.bls.gov/oes/current/oes452099.htm .
3. Debt Capital: All resources use should account for interest charge. The interest charge for borrowed capital can be used to calculate interest charges of all resources used in the farm.
4. Equity Capital: The farm equity multiplied by the interest rate of the next best business opportunity (e.g., a money market fund or 12-month Treasury Bills) provides the value of equity capital.

Another way of evaluating the performance of the business is through ratio analyses which would allow comparison across different sizes of farms as well as with nonfarm investments. Profitability ratios relate dollars of income per dollar invested. The two most commonly used ratios are:

1. Rate of Return to Total Capital (RORTTC)—relates the returns on debt and equity capital to the total assets used in the farm. Rate of return to total capital is calculated:

   RORTTC = Returns to Debt & Equity/Average Farm Assets

2. Rate of Return to Equity Capital (RORTEC)—provides the rate of return per dollar of equity capital that is invested in the farm or ranch. It is calculated:

   RORTEC = Returns to Equity/Average Farm Equity

In the calculation of these ratios, a couple of points must be clarified. First, capital expenditures are made throughout the year, thus the value of farm assets (the denominator used to calculate the rate of return to total capital) is the average of the beginning and end of the year asset values. Similarly, equity varies throughout the year, therefore the value of farm equity (the denominator used to calculate the rate of return to equity) should be the average of the beginning and end of the year equity.

Second, the rate of return to total capital should include not only returns from income (as is usually the case), but also returns from capital gain (loss). The rate of return to total capital from capital gain (loss) equals the estimated capital gain (loss) divided by the average farm assets. Also, the rate of return to equity from capital gain (loss) equals the estimated gain (loss) divided by the average farm equity.

For additional information please contact:

Etaferahu Takele:
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Address: 21150 Box Springs Road, Moreno Valley, CA 92557
Tel. No. 951-683-6491 Ext. 221
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http://ceriverside.ucanr.edu

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