

Major Topics are:

Balance Sheet - Profit & Loss Statement - Evaluation of Investment decisions – Average Rate of Return - Payback Period - Net Present Value & IRR

Balance Sheet

A balance sheet provides a snapshot of a business' health at a point in time. It is a summary of what the business owns (assets) and owes (liabilities). Balance sheets are usually prepared at the close of an accounting period such as month-end, quarter-end, or year-end. New business owners should not wait until the end of 12 months or the end of an operating cycle to complete a balance sheet. Savvy business owners see a balance sheet as an important decision-making tool.

How to Prepare A Balance Sheet

A balance sheet is a statement of a firm's assets, liabilities and net worth. The key to understanding a balance sheet is the simple formula:

$$\text{Assets} = \text{Liabilities} + \text{Net Worth}$$

All balance sheets follow the same format: If it is in two columns, assets are on the left, liabilities are on the right, and net worth is beneath liabilities. If it is in one column, assets are listed first, followed by liabilities and net worth.

Here is a sample balance sheet for the Doodads Company.

DOODADS CO. BALANCE SHEET AS OF DEC 31, 20XX	
Assets	\$\$
Current Assets	
Cash On Hand	\$ 300
Cash in Bank	\$ 2,200
Accounts Receivable	\$ 1,600
Merchandise Inventory	\$ 5,500
Prepaid Expenses	
Rent	\$ 1,200
Total Current Assets	\$10,800
Fixed Assets	
Equipment and Fixtures	
(less Depreciation)	\$ 1,200
Total Assets	\$12,000
Liabilities	\$\$
Current Liabilities	
Accounts Payable	\$ 1,100
Notes Payable, Bank	\$ 2,200
Accrued Payroll Expenses	\$ 500
Total Current Liabilities	\$ 3,800
Long-Term Liabilities	
Notes Payable, 1998	\$ 5,500
Total Liabilities	\$ 9,300
Net Worth*	\$ 2,700
Total Liabilities and Net Worth	\$12,000
*Assets = Liabilities + Net Worth	

Assets

In this section, each type of asset is explained. A worksheet is provided for your use in assembling a balance sheet for your business on Page 9. All balance sheets show the same categories of assets: current, long-term (fixed) assets, and other assets. Assets are arranged in order of how quickly they can be turned into cash. Turning assets into cash is called liquidity.

Current assets include cash, stocks and bonds, accounts receivable, inventory, prepaid expenses and anything else that can be converted into cash within one year or during the normal course of business. These are the categories you will use to group your current assets. This Business Builder focuses on the current assets most commonly used by small businesses: cash, accounts receivable, inventory and prepaid expenses. Cash is relatively easy to figure out. It includes cash on hand, in the bank and in petty cash.

Accounts receivable is what you are owed by customers. The easy availability of this information is important. Fast action on slow paying accounts may be the difference between success and failure for a small business. To make this number more realistic, you should deduct an amount from accounts receivable as an allowance for bad debts. Inventory may be your largest current asset.

On a balance sheet, the value of inventory is the cost to replace it. If your inventory were destroyed, lost or damaged, how much would it cost you to replace or reproduce it? Inventory includes goods ready for sale, as well as raw material and partially completed products that will be for sale when they are completed.

Prepaid expenses are listed as a current asset because they represent an item or service that has been paid for but has not been used or consumed. An example of a prepaid expense is the last month of rent of a lease that you may have prepaid as a security deposit. It will be carried as an asset until it is used. Prepaid insurance premiums are another example of a prepaid expense. Sometimes, prepaid expenses are also referred to as unexpired expenses.

On a balance sheet, current assets are totaled and this total is shown as the line item: Total Current Assets

step 1: Complete the current asset section of the worksheet.

Fixed Assets are also known as long-term assets. Fixed assets are the assets that produce revenues. They are distinguished from current assets by their longevity. They are not for resale. Many small businesses may not own a large amount of fixed assets. This is because most small businesses are started with a minimum of capital. Of course, fixed assets will vary considerably and depend on the business type (such as service or manufacturing), size and market.

Fixed assets include furniture and fixtures, motor vehicles, buildings, land, building improvements (or leasehold improvements, if you rent), production machinery, equipment and any other items with an expected business life that can be measured in years.

All fixed assets (except land) are shown on the balance sheet at original (or historic) cost less any depreciation. Subtracting depreciation is a conservative accounting practice to reduce the possibility of overvaluation. Depreciation subtracts a specified amount from the original purchase price for the wear and tear on the asset. It is important to remember that original cost may be more than the asset's invoice price. It can include shipping, installation, and any associated expenses necessary for readying the asset for service.

This Business Builder assumes that you are familiar with depreciation, have already selected a depreciation method and are comfortable with its application. If you are not familiar with depreciation, you can still prepare a balance sheet. It will provide you with similar benefits, but it will not be in conformance with GAAP.

This section concentrates on the categories of fixed assets common to most small businesses: furniture and fixtures, motor vehicles, and machinery and equipment.

- Furniture and fixtures is a line item that includes office furniture, display shelves, counters, work tables, storage bins and other similar items. On the balance sheet, these items are listed at cost (plus related expenses) minus depreciation.
- Motor vehicles is a line item to list the original value (less depreciation) of any motor vehicle, such as a delivery truck, that is owned by your business.
- Machinery and equipment are vital to many businesses. If you are a manufacturing firm, this could be your largest fixed asset. Like the other fixed assets on the balance sheet, machinery and equipment will be valued at the original cost minus depreciation.
- Other assets is a fourth category of fixed assets. Other assets are generally intangible assets such as patents, royalty arrangements and copyrights.

Step 2: Complete the Fixed Assets Section and the Other Assets Section of the worksheet and compute the total assets of your business.

Liabilities

There are two types of liabilities: current liabilities and long-term liabilities. Liabilities are arranged on the balance sheet in order of how soon they must be repaid. For example, accounts payable will appear first as they are generally paid within 30 days.

Notes payable are generally due within 90 days and are the second liability to appear on the balance sheet. Current liabilities are accounts payable, notes payable to banks (or others), accrued expenses (such as wages and salaries), taxes payable, the current due within one year portion of long-term debt and any other obligations to creditors due within one year from the date of the balance sheet.

The current liabilities of most small businesses include accounts payable, notes payable to banks and accrued payroll taxes.

- Accounts payable is the amount you may owe any suppliers or other creditors for services or goods that you have received but not yet paid for.
- Notes payable refers to any money due on a loan during the next 12 months.
- Accrued payroll taxes would be any compensation to employees who have worked, but have not been paid, at the time the balance sheet is created.

Long-term liabilities are any debts that must be repaid by your business more than one year from the date of the balance sheet. This may include startup financing from relatives, banks, finance companies or others.

Step 3: Complete the Liabilities Section of the worksheet. Compute Total Liabilities.

Net Worth

The formula that defines the balance sheet is:

$$\mathbf{Assets = Liabilities + Net\ Worth}$$

The formula can be transposed to yield a definition of net worth:

$$\mathbf{Net\ Worth = Assets - Liabilities}$$

Net worth is what is left over after liabilities have been subtracted from the assets of the business. In a sole proprietorship, it is also known as owner's equity. This equity is the investment by the owner plus any profits or minus any losses that have accumulated in the business.

Step 4: Complete the Net Worth Section of the worksheet. When this is done, you should have a completed balance sheet for your business.

BALANCE SHEET WORKSHEET

Enter your Company Name here: _____

ASSETS	BEGINNING: _____	PROJECTED: _____
<u>Current Assets</u>		
Cash in bank	\$ _____	\$ _____
Accounts receivable	\$ _____	\$ _____
Inventory	\$ _____	\$ _____
Prepaid expenses	\$ _____	\$ _____
Other current assets	\$ _____	\$ _____
Total Current Assets	\$ _____	\$ _____
<u>Fixed Assets</u>		
Machinery & equipment	\$ _____	\$ _____
Furniture & fixtures	\$ _____	\$ _____
Leasehold improvements	\$ _____	\$ _____
Land & buildings	\$ _____	\$ _____
Other fixed assets	\$ _____	\$ _____
(LESS accumulated depreciation on all fixed assets)		
Total Fixed Assets (net of depreciation)	\$ _____	\$ _____

<u>Other Assets</u>		
Intangibles	\$ _____	\$ _____
Deposits	\$ _____	\$ _____
Goodwill	\$ _____	\$ _____
Other	\$ _____	\$ _____
Total Other Assets	\$ _____	\$ _____
TOTAL ASSETS	\$ _____	\$ _____
LIABILITIES AND EQUITY		
<u>Current Liabilities</u>		
Accounts payable	\$ _____	\$ _____
Interest payable	\$ _____	\$ _____
Taxes payable	\$ _____	\$ _____
Notes payable, short-term (due within 12 months)	\$ _____	\$ _____
Current part, long-term debt	\$ _____	\$ _____
Other current liabilities	\$ _____	\$ _____
Total Current Liabilities	\$ _____	\$ _____
<u>Long-term Debt</u>		
Bank loans payable	\$ _____	\$ _____
Notes payable to stockholders	\$ _____	\$ _____
LESS: Short-term portion	\$ _____	\$ _____
Other long-term debt	\$ _____	\$ _____
Total Long-term Debt	\$ _____	\$ _____
TOTAL LIABILITIES	\$ _____	\$ _____
<u>Net Worth</u>	\$ _____	\$ _____
TOTAL LIABILITIES & NET WORTH	\$ _____	\$ _____

How to Analyze A Balance Sheet

Now that you have created a balance sheet for your business, there are some easy calculations that you can perform that will give you a better understanding of your company. Using data from your balance sheet, you can calculate liquidity and leverage ratios.

These financial ratios turn the raw financial data from the balance sheet into information that will help you manage your business and make knowledgeable decisions. A

ratio shows the relationship between two numbers. It is defined as the relative size of two quantities expressed as the quotient of one divided by the other. Financial ratio analysis is important because it is one method loan officers use to evaluate the credit worthiness of potential borrowers. Ratio analysis is a tool to uncover trends in a business as well as allow the comparison between one business and another.

In the following section, four financial ratios that can be computed from a balance sheet are examined:

- Current Ratio
- Quick Ratio
- Working Capital
- Debt/Worth Ratio

Current Ratio

The current ratio (or liquidity ratio) is a measure of financial strength. The number of times current assets exceed current liabilities is a valuable expression of a business' solvency.

Here is the formula to compute the current ratio:

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

The current ratio answers the question, "Does my business have enough current assets to meet the payment schedule of current liabilities with a margin of safety?" A rule-of-thumb puts a strong current ratio at two. Of course, the adequacy of a current ratio will depend on the nature of the small business and the character of the current assets and current liabilities. While there is usually little doubt about debts that are due, there can be considerable doubt about the quality of accounts receivable or the cash value of inventory. A current ratio can be improved by either increasing current assets or decreasing current liabilities.

This can take the form of the following:

- Paying down debt.
- Acquiring a loan (payable in more than one year's time).
- Selling a fixed asset.
- Putting profits back into the business.

A high current ratio may mean that cash is not being utilized in an optimal way. That is, the cash might better be invested in equipment.

Quick Ratio

The quick ratio is also called the “acid test” ratio. It is a measure of a company’s liquidity. The quick ratio looks only at a company’s most liquid assets and divides them by current liabilities. Here is the formula for the quick ratio:

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

The assets considered to be “quick” assets are cash, stocks and bonds, and accounts receivable (all of the current assets on the balance sheet, except inventory). The quick ratio is an acid test of whether or not a business can meet its obligations if adverse conditions occur. Generally, quick ratios between .50 and 1 are considered satisfactory as long as the collection of receivables is not expected to slow.

Working Capital Working capital should always be a positive number. It is used by lenders to evaluate a company’s ability to weather hard times. Often, loan agreements specify a level of working capital that the borrower must maintain.

$$\text{Working Capital} = \text{Total Current Assets} - \text{Total Current Liabilities}$$

The current ratio, quick ratio and working capital are all measures of a company’s liquidity. In general, the higher these ratios are, the better for the business and the higher degree of liquidity.

Debt/Worth Ratio

The debt/worth ratio (or leverage ratio) is an indicator of a business’ solvency. It is a measure of how dependent a company is on debt financing (or borrowings) as compared to owner’s equity. It shows how much of a business is owned and how much is owed. The debt/worth ratio is computed as follows:

$$\text{Debt/Worth Ratio} = \frac{\text{Total Liabilities}}{\text{Net Worth}}$$

Step 5: Compute the current ratio, quick ratio, working capital, and debt/worth ratio for your company.

The profit and loss statement, or P&L, is a name that is often used for what today is the income statement, statement of income, statement of operations, or statement of earnings. In other words, the profit and loss statement reports a company's revenues, expenses, and most of the gains and losses which occurred during the period of time specified in its heading.

The profit and loss statement's period of time could be a year, a year-to-date period such as nine months, a quarter of a year, one month, four weeks, 52 weeks, etc. (A few gains and losses will not be reported on the profit and loss statement and will instead be reported on the company's statement of comprehensive income.)

Under the accrual basis (or method) of accounting the revenues and expenses reported on the profit and loss statement should be:

- the revenues (sales, service fees) that were *earned* during the accounting period, and
- the expenses (cost of goods sold, salaries, rent, advertising, etc.) that *match* the revenues being reported or *have expired* during the accounting period

Today, the bottom line of this financial statement will appear as *net income*, which is the net amount of the revenues, expenses, gains, and losses being reported.

The basic equation on which a profit & loss statement is based is

$$\text{Revenues} - \text{Expenses} = \text{Profit}$$

All companies need to generate revenue to stay in business. Revenues are used to pay expenses, interest payments on debt, and taxes owed to the government. After the costs of doing business are paid, the amount left over is called net income. Net income is theoretically available to shareholders, though instead of paying out dividends, the firm's management often chooses to retain earnings for future investment in the business.

Profit & loss statements are all organized the same way, regardless of industry. The basic outline is shown in the following example:

Profit & Loss Statement for Company XYZ, Inc.

for the year ended December 31, 2008

Total Revenue	\$100,000
Cost of Goods Sold	(\$ 20,000)
Gross Profit	\$ 80,000
Operating Expenses	
Salaries	\$10,000
Rent	\$10,000
Utilities	\$ 5,000
Depreciation	\$ 5,000
Total Operating Expenses	(\$ 30,000)
Operating Profit (EBIT)	\$ 50,000
Interest Expense	(\$ 10,000)
Income before taxes (EBT)	\$ 40,000
Taxes	(\$ 10,000)
Net Income	\$ 30,000
Number of Shares Outstanding	30,000
Earnings Per Share (EPS)	\$1.00

Capital Budgeting Models

There are a number of capital budgeting models available that assess and rank capital expenditure proposals. Let's take a look at four of the most common models for evaluating business investments:

1. *Accounting rate of return*
2. *Payback*
3. *Net present value*
4. *Internal rate of return*

While each of these models has its benefits and drawbacks, sophisticated financial managers prefer the net present value and the internal rate of return methods. There are two reasons why these models are favored: (a) all of the cash flows over the entire length of the project are considered, and (b) the future cash flows are discounted to reflect the time value of money.

The following table highlights the differences among the four models:

	METHOD	INFORMATION USED	TIME PERIOD COVERED
1	Accounting Rate of Return	Accrual Accounting Amounts	Average of All Years or a Specific Year
2	Payback	Cash Flows – Not Discounted	Until Cash is Recovered
3	Net Present Value	Discounted Cash Flows	Entire Life of Project
4	Internal Rate of Return	Discounted Cash Flows	Entire Life of Project

Evaluating Capital Expenditures

Let's use the capital budgeting models to evaluate a potential business investment at Treeline Manufacturing, Inc.:

- Treeline Manufacturing must decide whether or not it should buy a new machine to replace its existing machine. Because the new machine is faster, it would eliminate the need for a worker now employed to run the existing machine during the evening shift. The initial annual savings are expected to be \$24,000, with future cost savings expected to increase \$1,000 or more per year.
- The old machine is fully depreciated and would be scrapped with no expected salvage value (no proceeds).
- The new machine costs \$100,000 and is expected to have no salvage value at the end of its useful life of 8 years. For purposes of financial reporting, the machine would be depreciated over its 8-year life using the straight-line method. For income tax reporting, it would be depreciated over 7 years using the accelerated method. The company's income tax rate (federal and state combined) is 30%.
- The new machine would be placed into service on January 1 and a full year of depreciation expense would be recorded on the financial statements during the first year. For income tax purposes our analyses uses a half-year of depreciation during the first year.
- The relevant accrual basis of accounting amounts have been identified as follows

Treeline Manufacturing, Inc.
Relevant Accrual Accounting Revenues and Expenses
Pertinent to the New Machine

	Year 1	Year 2	Year 3	Year 4
Change in revenues	\$ -0-	\$ -0-	\$ -0-	\$ -0-
Change in depreciation expense*	12,500	12,500	12,500	12,500
Change in labor expenses	<u>(24,000)</u>	<u>(25,000)</u>	<u>(26,000)</u>	<u>(27,100)</u>
Change in accounting net income before tax	11,500	12,500	13,500	14,600
Change in income tax expense @ 30%	<u>3,450</u>	<u>3,750</u>	<u>4,050</u>	<u>4,380</u>
Change in accounting net income after tax	<u>\$ 8,050</u>	<u>\$ 8,750</u>	<u>\$ 9,450</u>	<u>\$ 10,220</u>

	Year 5	Year 6	Year 7	Year 8
Change in revenues	\$ -0-	\$ -0-	\$ -0-	\$ -0-
Change in depreciation expense*	12,500	12,500	12,500	12,500
Change in labor expenses	<u>(28,200)</u>	<u>(29,300)</u>	<u>(30,500)</u>	<u>(31,733)</u>
Change in accounting net income before tax	15,700	16,800	18,000	19,233
Change in income tax expense @ 30%	<u>4,710</u>	<u>5,040</u>	<u>5,400</u>	<u>5,770</u>
Change in accounting net income after tax	<u>\$ 10,990</u>	<u>\$ 11,760</u>	<u>\$ 12,600</u>	<u>\$ 13,463</u>

*The depreciation expense on the income statement is based on the straight-line method.

Definition: The **Average Rate of Return (ARR)**, measures the profitability of the investments on the basis of the information taken from the financial statements rather than the cash flows. It is also called as **Accounting Rate of Return**.

The formula for calculating the average rate of return is:

Average Rate of Return = Average Income / Average Investment over the life of the project

Where, Average Income = Average of post-tax operating profit

Average Investment = (Book value of investment in the beginning + book value of investments at the end) / 2

Accept-Reject Criteria: The projects having the rate of return higher than the minimum desired returns are accepted.

Merits of Average Rate of Return

1. It is very simple to calculate and easy to understand
2. The measures the profitability of the entire project since it considers the cash flows throughout the life of the project.
3. It is based on the accounting information which is readily available and easily understood by the businessmen.

Demerits of Average Rate of Return

1. It is based on the accounting information and not on the actual cash flows since the cash flow approach is considered superior to the accounting approach.
2. It does not take into consideration, the **Time Value of Money**.
3. It is inadequate to differentiate between the projects on the basis of amounts required for the investment, in case the proposals have the same rate of return.

Thus, this is the only method that uses the firm's financial data to assess the profitability of the project undertaken and do not rely on the future cash flows.

Definition: The **Payback Period** helps to determine the length of time required to recover the initial cash outlay in the project. Simply, it is the method used to calculate the time required to earn back the cost incurred in the investments through the successive cash inflows.

The formula to calculate it:

$$\text{Payback Period} = \text{Initial Outlay} / \text{Cash Inflows}$$

Accept-Reject Criteria: The projects with the lesser payback are preferred.

Merits of Payback Period

1. It is very simple to calculate and easy to understand.
2. This method is helpful to analyze risk, i.e. to determine how long the investments will be at risk.
3. It is beneficial for the industries where the investments become obsolete very quickly.
4. It measures the liquidity of the projects.

Demerits of Payback Period

1. The major drawback of this method is that it ignores the **Time Value of Money**.
2. It does not take into consideration the cash flows that occur after the payback period.
3. It does not show the liquidity position of the company, but only tells the ability of a project to return the initial outlay.
4. It does not measure the profitability of the entire project since it only focuses on the time required to recover the initial investment cost.
5. This method does not consider the life-span of investment, what if the life of an asset gets over very much before the initial investment cost is realized.

Thus, the payback period is the simplest method to assess the risk associated with the investment and the time required to get the initial outlay recovered.

Definition: The **Net Present Value** or **NPV** is a discounting technique of capital budgeting wherein the profitability of investment is measured through the difference between the cash inflows generated out of the cash outflows or the investments made in the project.

The formula to calculate the Net Present value is:

$$\text{Net present value} = \sum_{t=1}^n C_t / (1+r)^t - C_0$$

Where, C_t = cash inflow at the end of year t

n = life of the project

r = discount rate or the cost of capital

C_0 = cash outflow

Accept – Reject Criteria: If the NPV is positive, the project is accepted.

Merits of Net Present Value

1. It takes into consideration the **Time Value of Money**.
2. It measures the profitability of the entire project by considering the profits throughout its life.
3. It is easy to alter the discount rate, by just changing the value of the denominator.
4. This method is particularly suitable for the mutually exclusive projects.
5. It is consistent with the objective of maximizing the net wealth of the company.

Demerits of Net Present Value

1. The forecasting of cash flows is difficult because of several uncertainties involved in the operations of the firm.
2. It is difficult to compute the discount rate precisely. And this is one of the crucial factors in the computation of net present value as with the change in the discount factor the NPV results also changes.
3. Another problem is that it is an absolute measure, it accepts or rejects the projects only on the basis of its higher value irrespective of the cost of initial outlay.

Thus, to compute the Net Present value, a firm should determine the cash inflows and the outflows along with the discount rate or a rate of return that firm desires during the lifetime of the project.

Internal Rate of Return (IRR)

Definition: The **Internal Rate of Return or IRR** is a rate that makes the net present value of any project equal to zero. In other words, the interest rate that equates the present value of cash inflow with the present value of cash outflow of any project is called as Internal Rate of Return.

Unlike the Net present value method where we assume that the discount rate is known, in the case of Internal rate of return method, we put the value of NPV zero and then find out the discount rate that satisfies this condition.

The formula to calculate IRR is:

$$CF_0 = \sum_{t=1}^n C_t / (1+r)^t$$

Where, CF_0 = Investment

C_t = Cash flow at the end of year t

r = internal rate of return

n = life of the project

Accept- Reject criteria: If the project's internal rate of return is greater than the firm's cost of capital, accept the proposal.

Merits of Internal Rate of Return

1. IRR takes into account the **Time Value of Money**.
2. It considers the cash flows over the entire life of the project.
3. IRR is consistent with the goal of wealth maximization.
4. While computing the NPV the discount rate taken is normally the cost of capital, but in the case of IRR, there is no need for the cost of capital because the rate of return generated by

the project itself is used to evaluate the efficiency of the project. Thus, the rate is internal to the project.

Demerits of Internal Rate of Return

1. It is quite difficult and involves tedious calculations.
2. IRR produces multiple discount rates, which might be confusing.
3. While evaluating the mutually exclusive proposals, the project having the highest value is chosen over the other that may not be necessarily the most profitable or be in line with the objectives of the firm of wealth maximization.
4. It is assumed that the cash flows are reinvested at an internal rate of return.

The internal rate of return is usually the rate of return that a project earns. It is often called as the yield on investment, the marginal efficiency of capital, the marginal productivity of capital, rate of return and time adjusted rate of return.
