

MARKET RESEARCH STUDIES:

Your Market Share is 33.3%.
Economic Forecast next 4 quarters 100 103 1xx 1xx
Total Industry Sales(units) 105,000
Prices(Co 1-3): 34 34 34
Average Industry Advertising: \$ 50,000
Average Industry Product Development: \$ 50,000
Total Industry Sales force: 6
Average Quality Budget: \$ 10,000
Product Perception(Co #1-3): 28 28 28

MESSAGES TO YOUR FIRM, INDUSTRY REPORT, AND MINI-CASE RESPONSE

Production Cost(per unit)\$ 17.00
Product Perception is 28
Lost Sales 0
(Mini-Case Response will be printed here)

Use Mini-case A in Quarter 1.

New management has been hired for several firms in the industry.
The management teams are all geared up and ready to put spark into
the personal music firms.

The Economic Index looks positive so sales should increase in the immediate
future.

SECTION 3 ANALYSIS OF THE REPORT FOR QUARTER 0

This section explains the items on the quarterly report for quarter 0 that is on page 10.

INVENTORY AND PRODUCTION ANALYSIS

The first thing that should be pointed out is that the number of units you produce has no bearing on the number of units you sell. Some teams get the (incorrect) idea that if they increase production that sales will increase. As mentioned earlier, sales are driven by the Economic Index, advertising, product development, quality, and competitive pricing.

The left side of the report lists the production analysis which for quarter 0 is shown below.

Beginning Inventory	4,000	
+ Units Produced	<u>35,000</u>	
= Total Units Available	39,000	
- Sales	<u>35,000</u>	
= Ending Inventory (Quarter 0)	4,000	(This is your beginning inventory)

The ending inventory for quarter 0 becomes the beginning inventory for quarter 1, and so on. If you place an order on the decision form to produce more units than you have the capacity to produce, the simulation program will automatically reduce your production order to a value that is equal to your production capacity.

The plant capacity is listed on the right side of the report and appears like this:

Beginning Plant Capacity	35,082	(The ending capacity from the previous quarter)
+ Added Capacity	<u>1,000</u>	(1,000 units were entered on the decision form)
Capacity Available this Quarter	36,082	(The maximum number of units you can produce)
- Depreciation	<u>1,082</u>	(Units lost to aging equipment -3% of line above)
Plant Capacity Next Quarter	35,000	(This is your beginning capacity for quarter 1)

Inventory Expense

The cost to maintain your warehouse facilities is \$15,000 per quarter. In addition to this fixed expense, you will be charged \$2 per unit for each unit that did not sell and is in "ending inventory."

INCOME AND EXPENSE ANALYSIS

This portion will list the firm's sales revenue and interest income. The Cost of Goods Sold will be deducted from the sales revenue to indicate a common accounting term, gross margin. It should be noted that the Cost of Goods Sold is the production cost of only those units sold and not the total production cost for the quarter. Accounting practices dictate that only the units sold should be counted as an expense in a given quarter. However, the costs of manufacturing the units are a cash expense in the quarter in which they were manufactured and you will find this cash requirement in the *Cash Flow Analysis*.

At the end of the expenses is the Profit before Tax from which taxes and dividends are deducted. The final value, Retained Earnings represents the amount of profits being kept by the firm (e.g. not paid out as dividends). The amount of Retained Earnings is then added to or subtracted from the Total Retained Earnings shown on the Balance Sheet. Remember that retained earnings are an accounting entry only and this item does not represent a reserve of cash. The retained profits that a firm may have accumulated have already been utilized in a variety of ways such as additional plant expansion, additional inventory, or additional cash.

Interest Income

There may be occasions when you have excess cash. If your beginning cash balance exceeds \$60,000, your bank will automatically invest your cash in a money market fund. (Don't confuse the CASH on the Balance Sheet with Beginning Cash which is shown on the Cash Flow Analysis.) This fund currently pays 6% interest per year (1.5% per quarter) but may fluctuate with market interest rates. The interest income will appear on your Income and Expense statement near the top. Since your financial statement is shown in 000's, interest income values will be rounded either up or down so they can be shown in \$000's (integer method). The interest is paid on the first day of the next quarter. To reconcile the amount of interest earned, use the beginning cash value on the Cash Flow Analysis.

> A Beginning cash balance of \$60,000 would pay \$1,000 interest which would be shown as "1" on your Income and Expense statement.

Overhead and Fixed Expenses

The firm's overhead and fixed expenses are currently \$175,000 per quarter when you take over. This will allow the firm to have 35,000 units of capacity. For each 10,000 units above this amount, overhead will increase by \$25,000. Note: Overhead costs are based on the capacity (not sales) of the firm. This is the cost at the beginning of the simulation and may increase at any time.

Table 4
Overhead Cost based on Production Capacity

0 - 35,000	\$175,000
35,001- 45,000	\$200,000
45,001- 55,000	\$225,000
55,001- 65,000	\$250,000
65,001 -75,000	\$275,000

The cost continues in 10,000 unit blocks at a rate of \$25,000 per 10,000 units.

For example, a production capacity of 90,000 units would be \$325,000

Taxes

The simulation charges a tax rate equal to 40% of profits. This includes all types of local and federal taxes. If there is a VAT (value-added tax) or sales tax in your area, you may assume that it is included in this tax rate. If the firm has had losses it will receive a credit against any future profits from the government and no taxes will be due until this credit is exhausted.

Other Expenses

This item may contain any fines your instructor may assess, the cost of any mini-case expense, and any other costs that are not listed on the report in other places.

Quarterly Profit

Your quarterly profits reflect all revenues and expenses for the quarter except your loan principal repayment. This is because principal repayments do not count as a valid expense for tax purposes, although the interest on the loan is a tax expense. Dividends also are not an expense because they are a return on investment to the owners.

A Note on Depreciation Expense

You will notice that depreciation is listed as an expense on the financial statement although on the Cash Analysis section it is not shown as a deduction from cash. This is because the funds for the plant and equipment have already been paid out of cash when the additional capacity was purchased. Therefore, the depreciation figure is just an accounting entry that allows a portion of the plant and equipment cost to be allocated to expenses each quarter.

CASH FLOW ANALYSIS

The Cash Flow Analysis in the middle section of the quarterly report lists the firm's cash inflow, cash outflow, and ending cash position. You can use this information to plan cash needs and borrow additional funds if necessary.

The most important item in this section is the Net Cash Flow which indicates whether you had a shortage of cash or a positive cash balance. If this value is zero, it means your banker had to add to your loan for you (an overdraft loan). Hopefully though, your cash analysis will forecast your cash needs and you will make a loan.

A Note on Borrowing: It is not necessarily a negative thing if you need cash. If you are growing and need additional plant capacity, these funds usually need to be obtained by a loan.

Depreciation is a non-cash expense and is not included as a cash flow item. An explanation of this is called for at this point for those who have not had accounting. Depreciation charges are a method of allocating a portion of a large-fixed asset (such as the manufacturing plant in this simulation) to each accounting period. Therefore, in this simulation, the plant value (currently \$2,100,000) is depreciated at 3% for the upcoming quarter, making the depreciation expense \$63,000. Since the plant was paid for sometime in the past, there is no cash expense at this point, but we can use the depreciation expense as a legitimate expense for income tax purposes. This is why it is listed as an expense on the Income and Expense Analysis but not as an item for which cash was needed on the Cash Flow Analysis. Each quarter the Plant and Equipment figure will be decreased by the amount charged as depreciation expense and increased by the amount of plant addition.

If more goods were produced than were sold, the excess goods are added (at their current production cost, \$17 each) to the Inventory account. Conversely, if demand was more than the units produced, the excess demand will be met out of inventory to the point of a "stock out." Thus, a positive figure after Net Change in Inventory Value indicates goods were placed into inventory. A minus figure (B) indicates goods had to be taken from inventory to meet current sales in excess of production.

Loan Repayment

Your loan balance will be shown after any payments and additions. The interest cost will be shown on the income and expense statement. The current interest rate cost is 10% per year (2.5% per quarter).

Overdraft Loan

If you fail to borrow needed funds or if you do not borrow enough, the shortage will be made up automatically by the bank in the form of an overdraft loan. The interest on the overdraft portion of your loan

is 16% per year (4% per quarter). After one quarter, the overdraft loan becomes part of your regular loan and the higher interest rate is no longer charged.

Cash Flow versus Cash Expenses

When calculating the profits for a firm, only the cost of each unit sold is used. If more is produced than sold, the difference in sold vs. produced is a cash expense to the firm but does not influence the profit in any way. This difference will be shown on the Balance Sheet along with unsold inventory from the previous period, e.g., total inventory in stock at the end of the quarter. If demand is greater than production in the next quarter, the units will be taken out of inventory and the inventory account will be decreased and you have converted the inventory to cash.

Loan transactions are recorded under Loan Payment, and cash expended for building a larger plant is listed under Cost of Plant Addition. The total of all the above items represents the Total Cash Outflow for the quarter. If Total Inflows do not cover this amount, the balance must come from the Cash account, and that account is adjusted accordingly. If the cash outflow is less than cash inflow, the excess cash results in an addition to the Cash account.

Change in Price Level - Effect on Cash

If you change your price from one level to another, the value of the product in inventory must change to match your new cost level. To simplify matters, the simulation adjusts this on the cash flow analysis. There is no effect on profits.

Balance Sheet

A Balance Sheet is printed on the right side of the quarterly report. A Cash balance of zero (0) indicates there was not enough cash to cover all the cash needs and the bank automatically covered this overdraft with an additional loan.

Inventory is the dollar value of the current inventory at their average cost. The Plant & Equipment value of \$2,100,000 represents its net value after 3% depreciation for the quarter has been deducted and the current plant addition is applied. This value divided by \$60 will indicate the plant capacity ($\$2,100,000 / \$60 = 35,000$ units). Other Assets is a nonstandard accounting entry that is used to allow the balance sheet to balance due to the rounding of all numbers into even thousands. The Total Assets figure is the total of the four items above.

The next section of the balance sheet is Liabilities which consists of only Loans Payable. The stockholders' Equity is shown next. This consists of Common Stock (stock that has been sold) and retained earnings. When you assume control of the firm, 40,000 shares have been sold for a beginning capital of \$1,000,000. No additional shares will be sold, nor can any shares be repurchased by the business.

The other part of stockholders' equity is Retained Earnings. This is the accumulated value of all past profits less dividends paid. It represents the total profits since the firm began in business that have not been paid out to stockholders but retained by the firm for growth needs. Total Liabilities and Equity are the total of these three items. As a matter of accounting principles, total assets must equal total liabilities plus stockholders' equity.

Other Information on the Report

Just below the balance sheet is other information of interest. Current stock price, total shares of stock issued, earnings per share, the Economic Index for the current quarter, and which mini-case to use the following

period. **Earnings per share** are an important value. It is calculated by dividing the earnings after taxes but before dividends by the total number of shares. To annualize this quarterly value, multiply the result by four. Earnings per share are an important factor in the price of your stock.

On the lower third of the report you will find the **market research studies** that you have purchased. Next are the messages to your firm. This section contains a very important piece of information, **Lost Sales**. If Total Units Available were not enough to meet orders, the difference will be listed as Lost Sales. These sales are not back ordered but go to your competitors. Your current production cost per unit is given as well as your quality index. A message concerning the results of your response to the mini-case will also be given.

The **Industry Report** has announcements from the administrator and other industry-specific information. At first the team report may seem a bit confusing but in a quarter or two you will be reading it like a pro.

The Economic Index

The simulation uses an Economic Index to impart information on the general economic health of the economy and begins at an arbitrary value of 100. Any changes in this number will have an effect on the total demand for your product. For example, if the Economic Index forecast indicates a move from 100 to 105, the overall economy is expected to increase by 5%. Conversely, an index of 96 would indicate that economic conditions are expected to decrease approximately 4% from the original 100 quarter 0 value.

News Messages

The news message section of your report will provide instructor messages, the impact of your mini-case response, and other operational information including warnings.

OTHER INFORMATION CONCERNING THE STUDENT REPORT

A Note on Depreciation

Depreciation is an accounting term used to amortize the cost of physical property over a period of time that is regulated by tax laws. In the simulation, your Plant and Equipment will be depreciated at a rate of 3% per quarter. Thus, if your total Plant and Equipment is \$ 2,100,000 the depreciation that you may charge as an expense on the "Income and Expense" statement is \$63,000. Note that the capacity of your plant also is reduced by this same amount (to keep the calculation simple) as the equipment ages and is replaced each quarter. The \$2,100,000 value above represents a capacity of 35,000 units. Therefore, in quarter one you would expect the capacity to be automatically reduced by 1,050 units ($35,000 \times 3\%$). Your quarterly report will have a synopsis of your Plant and Equipment situation in the top left hand corner. It will look like the table on page 11. Plant capacity is reduced by 3% depreciation each quarter.

Production (Product) Cost and Relationship to the Price You Set for the Product

The production cost may increase due to new innovations you make (through budgeting product development) or due to underutilization of your production facility. The production cost may decrease due to high utilization of your production capacity or due to the quality budget.

When the simulation begins the firm is selling the product for \$34 per unit to its dealers and the cost to manufacture the product is \$17 per unit. If you reduce your price to have a low-cost strategy, it is assumed you are producing a "no frills" widget to keep your costs low. In this case, your cost will be reduced to \$11 by the simulation. On the other hand, if you want a premium price strategy, the simulation will assume you are adding premium features to the widget and the cost will be \$23 per unit. See Table 2 for the various

cost/price combinations. Any of the three strategies can be very profitable if the team makes all the other decisions to support its strategy.

A Note on Product Development

Naturally, it requires quite a larger amount of investment to create a new and different type of widget. The possibilities are endless. Of the total amount that you budget, the product development department will first use enough of the budget to improve the current product. This is the only prudent thing to do. Otherwise, your current product will be behind the competition in terms of features, looks, quality construction, etc.

Last quarter the firm budgeted \$50,000 for product development. This is enough for two product engineers working full time in your product lab. If you have a low price product, you will not need to budget as much in this area as the price is the major selling factor. However, even if you have a lower priced product, you would want to keep it up-to-date through a continued product development budget. A price strategy of medium or high price will require proportionally more budget in this area. Your relative product level as perceived by a marketing focus group is available as a market research study. You may want to check the public perception of your product to that of your competition, especially the competition at your price level.

Information Concerning Dividends

Dividends are a payment to stockholders for the investment they have made in the firm. Since the stockholders are the owners of a company, they have every right to be rewarded for the risk they have taken in investing capital funds in a firm. On the other hand, the firm may be in a high growth period and need all available profits for growth purposes. It is a difficult decision to know if the firm needs the dividends more than the stockholders do. If the firm does not have a ready need for profits then it should pay the profits to the rightful owners, the stockholders. Whatever you decide to do, always pay a dividend quarterly rather than once or twice a year. This is the standard practice by most firms and it makes the cash flow easier to predict. Never begin a dividend payment you cannot sustain. Stockholders will become disenchanted with your firm and your stock price will fall. Dividends cannot be paid if cash or retained earnings are negative.

Calculation of Stockholder Return on Investment

In order to give you some idea as to what return on investment a certain amount of dividends would give a stockholder, use the following formula. Total dividends paid divided by total value of the stock. This will give you a decimal of perhaps .01. Then multiply times 4 to give the annualized return. This is still a decimal so convert it ($.01 \times 4 = .04 = 4\%$).

Product Quality and Perception

As you know, all of us have a certain “perception” of a product. If it is a brand name product our perception is usually high. If a firm has a reputation for high quality the accompanying perception would also be high. In the simulation, a product’s perception consists of the following factors: the product’s quality; the firm’s advertising and promotion budget (we do form perceptions through advertising); whether a firm can meet its demand and not run out of stock of a product as well as handle its finances so that it does not have overdraft loans (indicating to the public that the firm is well managed). The decisions a firm makes that fall under the categories of business ethics and social responsibility also effects perception. A firm’s quality index will be listed on its quarterly report but the public’s perception of all firms products must be purchased through a market research study. It should be noted that a lower price product does not need as high a perception as a higher price product.

A Note on Borrowing - The Bank Loan

It is not “bad business” to borrow money. Most growing companies occasionally have a requirement for additional cash. This is used to build additional facilities, increase various budgets, and pay for the added cost of inventory required. These additional funds will be termed “capital” in the simulation. There are many types of loans but yours is a line of credit loan. This type of loan does not have a required repayment schedule but rather a payment can be made in any amount at any time. You may want to delay making any principal payments until you have a better feel for your cash needs. However, you should not end the simulation with a large amount of cash and a large loan principal; that would be an indication of poor financial management. You will lose your line of credit from the bank if you have three consecutive quarters of losses but returns as soon as you make a profit. Place your loan payment on the decision form with a minus (-) sign.

Interest Expense on the Bank Loan

The interest is calculated after any loan payment is applied to the outstanding balance. The current rate is 10% annual or 2.5% quarterly. Since your loan is a line-of-credit loan, you may borrow against your line of credit or make a payment on the loan at any time. You may want to use the cash analysis forecast form in section 5 to help plan your cash needs. Note that the interest rates are not related to the current rates in the real world in the current time period. The simulation has a predetermined economic cycle that it will adhere to.

A Note on Stock Price and Number of Shares

The market value of your stock is not a precise indicator of the performance of your firm but does give a rough estimate of the relative standings of the competing firms. Investor whims concerning poor performance one quarter could make the stock price decline perhaps more than it should. Investors may not know of the firm's overall plans and what it is trying to accomplish, thus undervaluing the stock. While you should not ignore the stock price, you should continue to operate your business and stick to your strategy.

When the firm began a year ago, there were 40,000 shares of stock that were sold at \$25 per share. You can compare how you are doing by using the \$25 value as the starting point, and by comparing your stock price to other firms.

Some of the factors that affect stock price are total sales and profits, return on sales (e.g., profit divided by total sales), customer satisfaction (as reflected by the ability to maintain an optimum inventory), product image (as reflected by advertising, promotion activities, quality budget, and good business ethics), preventing overdraft loans, and preventing lost sales