HOME-BASED AND MICRO BUSINESSES

CASHING IN ON BUSINESS OPPORTUNITIES

CALCULATING FINANCIAL RATIOS

PREFACE

The material contained in the following lesson, along with the accompanying presentation materials, is designed to assist the home-based or small business owner in understanding the enterprise's financial statements. By regularly collecting and analyzing financial statement information, the owner/manager can detect any problems and make necessary budget revisions before small problems become large ones. This information also helps potential lenders make decisions on extending credit to the enterprise.

This program is designed to be delivered in a seminar/workshop format. Presentation of the materials takes at least one and a half hours to allow participants plenty of time to work through the examples. Encourage participants to bring calculators to class. Examples of a balance sheet and income statement for a fictitious company to use in calculating relevant ratios are included in the appendix.

Goal: The goal of this session is to introduce the home-based and micro business owner-manager to ratio analysis.

Objectives: As a result of this program, participants will do the following:

- Know about a few key ratios used for industry-wide comparisons.
- Be able to calculate key ratios.
- Have the names and addresses of the sources for industry averages.

HANDOUTS

Handout 1 – Calculating Financial Ratios
Handout 2 – Income Statement
Handout 3 – Balance Sheet

INSTRUCTIONAL MATERIALS

The financial statements produced for your home business are valuable sources of information. They can help you identify both positive and negative trends that are useful in spotting problems while they are still fixable. You also can use financial statements to assess three important areas of concern to business owners:

- Profitability
- Financial health and credit worthiness of your business
- Efficiency with which the business is being operated

A number of financial ratios have been developed that provide information to help you assess the profitability, health, and operating efficiency of your business. A ratio by itself does not provide much useful information to the business owner-manager. Rather it needs to be compared over time or compared with ratios of similar-type businesses.

To do ratio analysis, you will need a balance sheet and income statement for your home business for the same time period. You might want to focus on the end of last year or on the most recent quarter. You'll also need a calculator to compute the ratios or percentages described below. The most common ratios are simple tests of profitability, financial health, and measures of operating efficiency.

PROFITABILITY

SLIDE 3-4

HANDOUT 1

Return on Investment (ROI) and Return on Sales (ROS).
The most common measures of profitability are return on owner's equity and return on sales. These ratios assess the rate of return the business is earning for the investments of its owners and the rate of return is being realized for every dollar of sales. These rates of return can also be compared to prevailing interest rates or other investment opportunities available. If you knew you could invest at 5 percent and the business is returning 10 percent, it would give you some satisfaction to know the business is returning more on your investment than if you had purchased CDs or some other investment vehicle. However, you also want to compare the rate of return against industry averages to be sure your business is generating a comparable rate of return to other businesses of its type. If the business is returning 10 percent but the industry average is 18 percent, clearly you could be doing better. The formulas for calculating these ratios are:

Return on Investment = (Net Profit before Taxes)/(Owner's Equity)

Return on Sales = (Net Profit Before Taxes)/(Net Sales)

HANDOUT 2-3

EXAMPLE: Using the balance sheet and income statement from Brandt & Erickson, Inc., in Handouts 2 and 3, take the net income before taxes ($6,988) and divide it by the owner's equity ($22,322). In this case, B&E's equity returned 31¢ for every $1 its owners invested.

FINANCIAL HEALTH

Financial health ratios are important to calculate for several reasons. They are a strong signal that a business may be getting ready to experience financial difficulties and they are key factors your banker would check before considering a loan to your business. It is always wise to present a loan request with solid knowledge of the financial health and indebtedness of your company. It is not sufficient to know the total of any monthly payments; you also need to be prepared to explain how the entire debt could be serviced in the event of a crisis. A banker will seek the answer to that question, so it is wise to be sure the answer will be an acceptable one before you make the request.

Another reason knowledge of the financial health of your company is important is that chances are your company is one of the 90 percent or so in the United States that is not incorporated. In this case, your company and you are generally considered one and the same for liability purposes. Thus, you are personally responsible for the debts of your company. Your personal resources serve to back up those of the company. You ought to ask the same tough questions a banker would ask and be sure the company is healthy enough that the assets you consider as personal assets (your home, your children's college fund, and the family car, for example) are adequately protected.

The most important measures of financial health are the 1) debt ratio and 2) the current ratio and quick (or acid test) ratios.

SLIDE 5

Debt to Asset Ratio. The debt ratio shows whether the assets a firm has (what it owns) are sufficient to pay its liabilities (what it owes to creditors). Ideally, there should be enough assets left after all debts are paid to continue operating, or to pay the owners a fair value for the equity they have invested in the business. Although a debt ratio of 1:1 is a standard over all industries, it only means that the business is able pay debts to creditors, and there is obviously much more that needs to be considered. Calculate your debt ratio by this formula:

Debt to Asset Ratio = (Total Liabilities)/(Total Assets)

HANDOUT 3

EXAMPLE: Using the balance sheet from Brandt & Erickson in Handout 3, divide total liabilities ($13,572) by the firms total assets ($35,894). Debts in this case are around 38 percent of total assets. This company has nearly three times as many assets as it has debts and so is in a very good position. If it had to pay off all debts tomorrow, it would still have funds to operate. Or, if it closed tomorrow, it could still pay off its debts, and also be able to pay out the entire owner's equity.

SLIDE 6

Current Ratio. The current and quick ratios show to what degree the business can meet its short-term debt obligations from assets. The current ratio demonstrates whether the business can or cannot meet its current debt by liquidating current assets. Current assets include those assets that can be converted into cash in the ordinary business cycle (one year), such as cash, accounts receivable, inventory, and short-term marketable securities. Current liabilities are those that come due within one year, such as accounts payable, taxes

payable, and current portions of long-term notes. A rule of thumb over all industries is to have a current ratio of 2:1 or better. The business should have more current assets than it has current liabilities, and there should be adequate operating capital left over. The current ratio is calculated as follows:

Current Ratio = (Current Assets)/(Current Liabilities)

EXAMPLE: Brandt & Erickson have current assets of $33,749 ($20,833 in inventory plus $12,916 in cash). They have current liabilities of $290 in quarterly taxes, a short-term inventory loan of $1,300 and $5,000 due this year on a long-term note, for a total of $6,590 in current liabilities. B&E's current ratio is excellent—nearly 5:1 (a 1:1 ratio is considered a bare minimum; 2:1 means a company can comfortably pay off its current debt).

SLIDE 7

Quick Ratio. The quick ratio is a more conservative measure of ability to meet debt from current assets, since it uses only the most liquid assets to cover current liabilities. The logic behind this calculation centers on the fact that if inventory is liquidated in a short-time frame, it is often done at a substantial discount. The quick ratio does not include inventory when calculating current assets available to service debt. The normal standard used across all industries is 1:1.

Quick Ratio = (Current Assets-Inventory)/(Current Liabilities)

HANDOUT 3

EXAMPLE: Using Brandt & Erickson's balance sheet in Handout 3, subtract inventory from current assets and get $12,916 in cash. B&E's current liabilities total $6,590. Again, B&E's quick ratio is strong at 1.96—that is, they have about $1.96 in cash to pay off each $1 of current debt, even if they sold no more inventory.

OPERATING EFFICIENCY

Certain managerial practices can cost your business some of its earnings, and sometimes this cost is hidden. For example, is current inventory exceptionally high? If so, why? Will unsold inventory have to be carried until next year or liquidated at cost? Are accounts receivable being collected in a timely manner? Operating efficiency ratios help the owner assess how well the resources of the business are being managed. What are those resources? A typical business has assets such as inventory, cash, receivables (money owed to it by customers), and space (its facilities), and human resources such as employees and their time. Oftentimes, a manager may be proficient at managing some, but not all of these resources. If a business is not producing the profit expected or desired, there may be a management problem. This problem may be general, or it may be specific to one or two types of resources. Operating efficiency ratios help to identify and isolate management problems which need to be addressed. Several ratios that can help you assess operating efficiency include net sales to working capital (cash turnover rate), average collection period (receivables turnover rate), inventory turnover, sales per square foot (space), sales per hour (time), sales per employee.

SLIDE 8

Average Collection Period. Dollars in someone else's pocket are not earning you money. So, if you offer credit to your customers, you want to monitor how efficiently you are collecting their payments. If your business is a service business, you probably bill most, if not all, customers for your services and they are expected to pay within a certain period. You have already performed the service and incurred the expenses of doing so, but some of your customers have not yet paid for this service. The value of what they owe you is reflected in accounts receivable on the balance sheet. The balance sheet for B & E does not show accounts receivable, so they are operating on a strictly cash basis, a luxury that many businesses do not have in this age of credit sales. The average collection period allows you to compare the rate at which your accounts receivable are collected to 1) your credit policy and 2) industry averages. The rule of thumb is that the ratio should be no greater than one-third of your collection period terms. If you offer terms of net 30, the ratio should be 30 or less. To calculate your average collection period, divide the amount of credit sales by the level of accounts receivable. This tells you the number of times that accounts receivable turns over in a year's time.

Average Collection Period (Times per Year) = (Credit Sales)/(Accounts Receivable)

In addition to monitoring your average collection period regularly, you want to have procedures in place for billing and reminding customers on a regular basis and securing their payments. A poor (high) average collection period suggests your procedures are inefficient or ineffective and need to be re-evaluated. It also suggests the company may be extending credit to customers who are not good credit risks. Periodic monitoring helps assure the receivables are being collected at a normal rate and the dollars are in your hands rather than in the hands of overdue customers.

SLIDE 9

Inventory Turnover Rate. Inventory is a major expense category for anyone selling at retail. It is also a major current asset, and it is important to make sure this investment is being used to produce earnings as effectively as possible. Inventory turnover rate is an indication of how effectively the inventory is being managed. (A similar measure is sales per square foot that shows how well selling space is being utilized.) Inventory turn rates can be calculated for the inventory as a whole or for specific categories of merchandise, by product line, by manufacturer, etc. There is a difference in turnover rates for various categories of merchandise, so it is probably wise to use at least broad merchandise categories if you have the data available. Then you can determine if one or more segments of the business could be improved. There is no reason to delve deeper unless you sense a problem within a category that you want to examine in greater depth. Inventory turnover rate is calculated as:

Inventory Turnover Rate = (Cost of Goods Sold)/(Average Inventory)

EXAMPLE: Brandt & Erickson's income statement in Handout 2 shows a beginning inventory valued at $10,000. They purchased $75,000 in merchandise and had an ending inventory of $20,000 in December. Their cost of goods sold is $65,000 ($10,000 + $75,000 -$20,000). Average inventory is one-half the sum of beginning and ending inventory. Interpretation of

inventory rates requires turnover data specific to the business and, in some cases, specific to the product line. Turnover for wholesale grocery products is very high (100) compared to turnover for refrigerators and similar large appliances (4); thus, there is no one rule of thumb to gauge what is an appropriate inventory turnover ratio. An experienced business person should have their past experience to judge by. In addition, vendors often have data on the typical turnover rate for their products, and trade industry publications may also provide insight. Once the average turnover ratio for a product is known, then your goal should be to meet or exceed it, but not by too much. A high turnover rate can be deceptive because it is easy to obtain it by poor inventory management, (i.e. frequent stock-out situations) and that causes lost sales. So, in this case, the "happy medium" is best.

SLIDE 10

Sales to working capital (cash turnover rate). This ratio helps you to assess whether you have enough working capital (current assets minus current liabilities) to operate the business, or whether you are cash poor and likely to suffer from problems of cash flow, like being unable to pay bills on time, or having to hold back on needed purchases for lack of ready cash. Working capital is the money needed to operate the business on a daily basis. It changes every time the business makes a sale, collects a payment, or pays an expense.

Now, how do you determine what's enough working capital for your business? Calculate the sales to working capital ratio by dividing sales for a specific time frame by the average level of working capital for that same time frame and then compare it to the industry rule of thumb of 5 to 6 times.

Cash Turnover Rate = (Net Sales)/(Current Assets-Current Liabilities)

EXAMPLE: B & E has current assets of $33,749 ($20,000 in inventory plus $12,916 in cash). They have current liabilities of $290 in quarterly taxes due, a short-term inventory loan of $1,300 and $5,000 due this year on a long-term note,or a total of $6,590 in current liabilities. Current assets minus current liabilities is $27,159. Now, divide net sales ($130,000) by working capital ($27,159). Rounded to a whole number, the result is 5. B & E has adequate working capital for its sales volume.

This ratio varies considerably over the course of a normal business year due to seasonal sales and purchasing. Therefore, it is important to account for seasonal changes when interpreting the ratio. Frequent measurement would probably be misleading for a business that is highly seasonal, but not for a business that was relatively steady across the year.

Some other measures of operating efficiency that might be useful in a business are sales per square foot, sales per hour, and sales per employee.

SLIDE 11

Sales per square foot is commonly used as a measure of the efficient use of space in a retail business. The sales are divided by the square footage of selling space. This measure can be used for the store as a whole, or for specific departments, or product lines. The results are often used to help make decisions about expanding and contracting space devoted to specific products or categories. This ratio is calculated as:

Sales per Square Foot = (Net Sales)/(Square Footage of Selling Space)

SLIDE 12

Sales per hour is a measure of the average dollars of sales earned during each hour the business is open. Companies that have computerized sales registers or detailed record keeping systems can monitor their sales on an hourly basis and determine which hours of the day, week, month and year are most important to staff at higher levels, and which can be staffed with lower levels of employees. This indicator is calculated as:

Sales per Hour = (Net Sales)/(Number of Working Hours in the Period)

SLIDE 13

Sales per employee. In an organization where sales people are primarily responsible for generating and making sales, sales per employee can provide the owner/manager with an average dollar value that has been earned per employee. Armed with this data, high performers can be identified, rewarded and encouraged, and lower performers can be identified, further trained, and monitored to help them improve their performances. In order to have this data, you would need to maintain records of the dollar value of each sale, and which employee made the sale.

Sales per Employee = (Net Sales)/(Average Number of Full Time Equivalent Employees)

SLIDE 14

Net Sales to Total Assets. A comparison of net sales to total assets demonstrates how efficiently the assets of the business are being used to generate sales. Assets include cash, inventory, land and buildings, equipment and tools—everything that is owned minus depreciation. The ratio is meaningful only when it can be compared to other firms in the same business category. The goal is to be average or better. A below-average ratio probably indicates the sales volume is inadequate for the asset size of the business. This ratio is calculated as:

Net Sales to Total Assets = (Net Sales)/(Total Assets)

NOTE: Include cash, inventory, land, buildings, equipment, tools, everything owned minus depreciation in net total assets.

EXAMPLE: Brandt & Erickson have $33,938 in net total assets ($35,894 in assets minus $1,955 in depreciation) and sales of $130,000. B&E's asset turnover is 3.83. While this ratio is primarily useful when compared to asset turnover ratios from previous years, a high asset turnover ratio generally indicates a business with good management flexibility and the capacity to respond rapidly to opportunities and problems.

Ratio analysis is an analytical tool you can use to see how your business's financial affairs

compare year to year and to other business firms in the same industry. The information and data gained from ratio analysis will help you make more informed business decisions and keep your business economically viable.

RATIO ANALYSIS PROCESS

Step 1. Calculate the ratios using the information above.

Step 2. Maintain records of these ratios over time so they can be charted and changes can be detected early.

Step 3. Compare the ratios of this business against similar businesses. Some industry sources are Robert Morris & Associates, Dun and Bradstreet, and Troy's Almanac of Business and Financial Ratios. These sources are available in many libraries and bankers' offices.

Step 4. Discuss the results with your business advisors. The key question to ask is whether you are satisfied with the profitability, health, and operating efficiency of your business. If not, it's time to dig further and find out what you can do to improve results.

Step 5. Determine what areas may need adjustment and develop action strategies to accomplish those adjustments. Put those strategies into action.

Step 6. Measure results at the end of the next fiscal period to make sure your strategies are working.

DUN & BRADSTREET

Dun & Bradstreet has been publishing "Industry Norms and Key Business Ratios" since 1932. These financial ratios cover 22 retail, 32 wholesale, and 71 industrial lines of business. Your banker or local public library will have access to these references, or they are available from Dun & Bradstreet / One Diamond Hill Road/ Murray Hill, NJ 07974/ phone: 908-665-5000 or 1-800-234-3867/ http://www.dnbcorp.com.

RISK MANAGEMENT ASSOCIATION

Long noted among bankers for their extensive work in the field of ratio compilation and analysis is the Risk Management Association (formerly Robert Morris Associates), a national association of bank loan and credit officers. Founded in 1914, this organization's size is indicated by the fact that its membership comprises more than 1,200 commercial banks. Its activities include maintenance and advancement of standards of correct credit practice. The Risk Management Association has developed annual statement studies for more than 350 lines of business. Those wishing further information may address inquiries to them at P.O. Box 8500, S-1140/ Philadelphia, PA 19178/ phone: 1-800-677-7621/ http://www.rmah7.org.

TROY'S ALMANAC

Leo Troy's Almanac of business and industrial financial ratios is produced annually. A nice feature is a ten year summary of key ratios for a wide variety of businesses. It is a useful

source of data if you want to focus on other small companies based on the dollar value of assets owned and eliminate large companies from comparison.

GOVERNMENT SOURCES

The Internal Revenue Service of the U.S. Treasury Department annually publishes Statistics of Income. This volume contains income statement and balance sheet data compiled from U.S. income tax returns.

Finally, the Census of Business, published at 5-year intervals by the Bureau of the Census, provides some ratio and dollar financial information.

RED FLAGS

Compiled below are some signs that the business may be experiencing difficulty, along with some possible causes of the difficulty. Some of these signals rely on interpreting the financial ratios you've calculated.

Sluggish Sales.

Symptoms

- Market position slipping.
- Sales figures stabilized; no growth apparent.
- Actual sales below those predicted.
- Sales-to-inventory ratio low compared to industry standards.
- Customer complaints frequent; merchandise returns climbing.

Possible Causes:

- Satisfaction with the status quo; obsolete or hard-to-sell items in sales lines.
- Failure to develop new products and services.
- Location inadequate; changing traffic patterns.
- Inattention to or inaction within a changing market.
- Poorly developed marketing efforts; erratic price cuts; hot-and-cold sales tactics substituted for coordinated marketing plan.
- Nonexistent market; initial failure to research market and target customer.
- Poor employee training in sales or service.

Deterioration of Operating Capital.

Symptoms

- Current ratio (current assets/current liabilities) lower than industry average.
- Acid test ratio (current assets minus inventory/current liabilities) lower than industry average.
- Accounts payable increasing; cash discounts not taken on purchases.
- Bank balance low; overdrafts and returned checks occurring regularly.
- Loan payments delinquent; suppliers threaten cash on delivery (COD) shipments only.
- Owner continually chasing dollars instead of running the business.

Possible Causes:

- Continuing operational losses.
- Unusual, nonrecurring losses (theft, fire, adverse one-time circumstances)
- Paying excessive salaries, bonuses, owner's draw.
- Over-investment in fixed assets from operating capital.
- Taking on too much debt for the size of the business and allowing business to run short of available cash.
- Temporary cash shortage caused by buildup of expenses to meet large contract and/or slow payment of a large credit account.
- Lengthening of collection periods on accounts receivable (see average collection period ratio).
- Over-investment in slow-moving inventory.

Declining Profits (or Increasing Losses).

Symptoms

- Return on sales ratio (operating profit/sales revenues X 100) low compared to industry average.
- Net sales/net total assets below industry standard.
- Inventory turnover rate lower than industry average.

Possible Causes:

- Lack of inventory balance; erosion of profits by costs of deadweight items.
- Poor organization within firm; cost control efforts hampered due to owner is trying to "do it all," or no controls at all.
- Lack of planning; improper scheduling of inventory, inadequate equipment maintenance with resultant delays or duplication of efforts.
- Improper pricing policies; not reflective of actual costs.
- Wrong or poor product choices for market demand.

Mounting Debt.

Symptoms

- Cash flow insufficient to take proper advantage of discounts.
- Accounts payable increasing.
- Current ratio lower than industry average.
- Business the target of creditors' liens.

Possible Causes:

- Over-investment in fixed assets.
- Over purchase of supplies or inventory.
- Slow sales.
- Increased expenses.
- Failure to plan cash flow position.

Most of these adverse conditions can be turned around by a change in financing or operation methods. Using the information you've harvested from your financial ratios to alert yourself to potential problems is a critical first step. Additional analysis can help you determine what action should be taken.

REFERENCES

Financial ratios. (2008, April 6). *Entrepreneurs and Their Communities, eXtension*. Retrieved from http://www.extension.org/pages/Financial_Ratios

Kepner, K. & Wysocki, A. (2008). Financial management: Some important generalizations. *University of Florida Institute of Food and Agricultural Sciences*. Retrieved from https://edis.ifas.ufl.edu/fe343

McConnon, J.C & French, F.M. (2008). Home-based business fact sheet: Keeping your business on track, Part III. *University of Maine Cooperative Extension*, #3002. Retrieved from http://umaine.edu/publications/3002e/

McCorkle, D. & Klinefelter, D. (2008). Financial and economic terms. *Texas AgriLife Extension,* E-474. Retrieved from http://agecoext.tamu.edu/fileadmin/user_upload/Documents/Resources/Risk_Management/rm5-11.pdf

Siciliano, G. (2003). Finance for Non-Financial Managers. New York: McGraw-Hill.

Tate, S., S. Ratliff, and K. Barker (2009). Question and answer guide for starting and growing your small business. *Virginia Cooperative Extension*, 310-100. Retrieved from http://pubs.ext.vt.edu/310/310-100/310-100_pdf.pdf

U. S. Small Business Administration (2012). Managing Business Finances and Accounting. Found at: http://www.sba.gov/category/navigation-structure/starting-managing-business/managing-business/running-business/managing-business-finances-accountin Oct, 2012.

Woodley, E. & Burt, L. (1998). Managing a new business: A beginner's guide to financial concepts and tools. *Oregon State University Extension Service*, EC 1222. Retrieved from http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/14122/ec1222.pdf

HANDOUT 1

CALCULATING FINANCIAL RATIOS

The financial statements produced for your home business are valuable sources of information. They can help you identify both positive and negative trends that are useful in spotting problems while they are still fixable. You also can use financial statements to assess three important areas of concern to business owners:

- Profitability
- The financial health and credit worthiness of your business
- The efficiency with which the business is being operated

A number of financial ratios have been developed that provide information to help you assess the profitability, health, and operating efficiency of your business. A ratio by itself does not provide much useful information to the business owner-manager. Rather it needs to be compared over time or compared with ratios of similar-type businesses.

To do ratio analysis, you will need a balance sheet and income statement for your home business for the same time period. You might want to focus on the end of last year or on the most recent quarter. You'll also need a calculator to compute the ratios or percentages described below. The most common ratios are simple tests of profitability, financial health, and measures of operating efficiency.

In the calculations that follow, the / (slash) means "divided by."

PROFITABILITY

Return on investment (ROI), return on sales and active owners return. The most common measures of profitability are return on owner's equity, return on sales, and active owners return. These ratios assess what rate of return the business is earning for the investments of its owners and what rate of return is being realized for every dollar of sales. These rates of return can also be compared to prevailing interest rates or other investment opportunities available. If you knew you could invest at 5 percent and the business is returning 10 percent, it would give you some satisfaction to know the business is returning more on your investment than if you had purchased CD's or some other investment vehicle. However, you also want to compare the rate of return against industry averages to be sure your business is generating a comparable rate of return to other businesses of its type. If the business is returning 10 percent but the industry average is 18 percent, clearly you could be doing better. Calculate your return on equity using this formula:

net income before taxes/owner's equity

EXAMPLE: Using the balance sheet and income statement from Brandt & Erickson, Inc., in Handouts 2 & 3, take the net income before taxes ($6,988) and divide it by the owner's equity

($22,322). In this case, B&E's equity returned 31 cents for every $1 its owners invested.
Active Owners Return. Ratios such as return on sales and return on investment do not tell the entire picture. For example, an owner may take a higher salary (an expense), and thus directly reduce the net profit, yet still be benefitting financially from the investment. The owner's salary is an additional source of profit for the owner (although it is an expense for the business). So, to assess return on investment from the active owner's standpoint, you need to consider both net profit and owner's salary.

EXAMPLE: Using Handout 2, add the net profit and the owner's salary together ($26,988) and divide it by the owner's equity ($22,322). In this case, B & E active owner's return is $1.20 for every $1 its owners invested.

Once the ratios are calculated, the next task is to determine what they mean. Ratios can vary, depending on the asset value of the business (how much it owns) the level of investment in inventory, and other factors, such as its sales volume. There are several benchmarks which can be used to judge the level of profitability of the business. For example, one can compare the profitability ratios to those of industry averages to determine how the business compares with others (those which are highly profitable as well as those losing money). Ratios that are below average are an indication that the business has problems, e.g. below average sales or higher than average expenses for the level of sales of the business. A higher than average ratio suggests that the business is profitable and that expenses are well managed in relation to sales.

FINANCIAL HEALTH

Financial health ratios are important to calculate for several reasons. They are a strong signal if a business is in trouble, and they are one thing your banker would check before considering a loan to your business. It is always wise to present a loan request with solid knowledge of the financial health and indebtedness of your company. It is not sufficient to know the total of any monthly payments; you also need to be prepared to explain how the entire debt could be serviced in the event of a crisis. A banker will seek the answer to that question, so it is wise to be sure the answer will be an acceptable one before you make the request.

Another reason knowledge of the financial health of your company is important is that chances are your company is one of the 90% or so in the United States that is not incorporated. In this case, your company and you are generally considered one and the same for liability purposes. Thus, you are personally responsible for the debts of your company. Your personal resources serve to back up those of the company. You ought to ask the same tough questions a banker would ask and be sure the company is healthy enough that the assets you consider as personal assets (your home, your children's college fund, and the family car, for example) are adequately protected.

The most important measures of financial health are 1) the debt ratio and 2) the current ratio and quick (or acid test) ratios.

Debt Ratio. The debt ratio shows whether the assets a firm has (what it owns) are sufficient to pay its liabilities (what it owes to creditors). Ideally, there should be enough assets left after all debts are paid to continue operating, or to pay the owners a fair value for the equity they have invested in the business. Although a debt ratio of 1:1 is a standard in the industry, it only means that the business is able pay debts to creditors, and there is obviously much more that needs to be considered! Calculate your debt ratio by this formula:

Total liabilities/total assets = shows what percent of assets the debt is

EXAMPLE: Using the balance sheet from Brandt & Erickson in Handout 3, divide total liabilities ($13,572) by the firms total assets ($35,894). Debts in this case are around 38% of total assets. This company has nearly three times as many assets as it has debts and so is in a very good position. If it had to pay off all debts tomorrow, it would still have funds to operate. Or, if it closed tomorrow, it could still pay off its debts, and also be able to pay out the entire owner's equity.

Current Ratio. The current and quick ratios show to what degree the business can meet its debt obligations from assets. The current ratio demonstrates whether the business can or cannot meet its current debt using current assets. Current assets include those that can be converted into cash in the ordinary business cycle (one year), cash, accounts receivable, inventory, and shortterm marketable securities. Current liabilities are those that come due within one year, such as accounts payable, taxes payable, and current portions of long-term notes. The goal is to have a ratio of 2:1 or better. The business should have more current assets than it has current liabilities, and there should be adequate operating capital left over. Current ratio is calculated by this formula:

current assets/current liabilities

EXAMPLE: Brandt & Erickson have current assets of $33,749 ($20,833 in inventory plus $12,916 in cash). They have current liabilities of $290 in quarterly taxes, a short-term inventory loan of $1,300 and $5,000 due this year on a long-term note, for a total of $6,590 in current liabilities. B&E's current ratio is excellent—nearly 5:1 (a 1:1 ratio is considered a bare minimum; 2:1 means a company can comfortably pay off its current debt).

Quick Ratio. The quick ratio is a more conservative measure of ability to meet debt from current assets, since it uses only the most liquid assets to cover current liabilities. The quick ratio does not include inventory when calculating current assets available to service debt. The normal standard used is 1:1. To calculate the quick ratio:

current assets minus inventory/current liabilities

EXAMPLE: Using Brandt & Erickson's balance sheet in Handout 3 subtract inventory from current assets and get $12,916 in cash. B&E's current liabilities total $6,590. Again, B&E's quick ratio is strong at 1.96—that is, they have about $1.96 in cash to pay off each $1 of

current debt, even if they sold no more inventory.

OPERATING EFFICIENCY

Certain managerial practices can cost your business some of its earnings, and sometimes this cost is hidden. For example, is current inventory exceptionally high? If so, why? Will unsold inventory have to be carried until next year or liquidated at cost? Are accounts receivable being collected in a timely manner? Operating efficiency ratios help the owner assess how well the resources of the business are being managed. What are those resources? A typical business has assets such as inventory, cash, receivables (money owed to it by customers), and space (its facilities), and human resources such as employees and their time. Oftentimes, a manager may be proficient at managing some, but not all of these resources. If a business is not producing the profit expected or desired, there may be a management problem. This problem may be general, or it may be specific to one or two types of resources. Operating efficiency ratios help to identify and isolate management problems which need to be addressed. Several ratios that can help you assess operating efficiency include net sales to working capital (cash turnover rate), average collection period (receivables turnover rate), inventory turnover, sales per square foot (space), sales per hour (time), sales per employee.

Average Collection Period. Dollars in someone else's pocket are not earning you money. So, if you offer credit to your customers you want to monitor how efficiently you are collecting their payments. If your business is a service business, you probably bill most, if not all, customers for your services and they are expected to pay within a certain period. You have already performed the service and incurred the expenses of doing so, but some of your customers have not yet paid for this service. The value of what they owe you is reflected in accounts receivable. On the balance sheet. The balance sheet for B & E does not show accounts receivable, so they are operating on a strictly cash basis, a luxury that many businesses do not have in this age of credit sales. Average collection period allows you to compare the rate at which your accounts receivable are collected to 1) your credit policy and 2) to industry averages. The rule of thumb is that the ratio should be no greater than one-third of your collection period terms. If you offer terms of net 30, the ratio should be 30 or less. To calculate your average collection period :

credit sales/accounts receivable = times per year

In addition to monitoring your average collection period regularly, you want to have procedures in place for billing and reminding customers on a regular basis and securing their payments. A poor average collection period suggests your procedures are inefficient or ineffective and need to be re-evaluated. It also suggests the company may be extending credit to customers who are not good credit risks. Periodic monitoring helps assure the receivables are being collected at a normal rate and the dollars are in your hands rather than in the hands of overdue customers.

Inventory Turnover Rate. Inventory is a major expense category for anyone selling at retail. It is also a major current asset, and it is important to make sure this investment is

being used to produce earnings as effectively as possible. Inventory turnover rate is an indication of how effectively the inventory is being managed. (A similar measure is sales per square foot that shows how well selling space is being utilized.) Inventory turn rates can be calculated for the inventory as a whole or for specific categories of merchandise, by product line, by manufacturer, etc. There is a difference in turnover rates for various categories of merchandise, so it is probably wise to use at least broad merchandise categories if you have the data available. Then you can determine if one or more segments of the business could be improved. There is no reason to delve deeper unless you sense a problem within a category that you want to examine in greater depth. Inventory turnover rate is calculated:

cost of goods sold/average inventory

EXAMPLE: Brandt & Erickson's income statement in Handout 2 shows a beginning inventory valued at $10,000. They purchased $75,000 in merchandise and had an ending inventory of $20,000 in December. Their cost of goods sold is $65,000 ($10,000 + $15,000 - $20,000). Average inventory is one-half the sum of beginning and ending inventory. Interpretation of inventory rates requires turnover data specific to the business, and in some cases, specific to the product line. Turnover for wholesale grocery products is very high (100) compared to turnover for refrigerators and similar large appliances (4), thus there is no one rule of thumb to gauge what is an appropriate inventory turnover ratio. A experienced business person will have past experience to judge by. In addition, vendors often have data on the typical turnover rate for their products, and trade industry publications may also provide insight. Once the average turnover ratio for a product is known, then your goal should be to meet or exceed it, but not by too much. A high turnover rate can be deceptive because it is easy to obtain it by poor inventory management, (i.e. frequent stock-out situations) and that causes lost sales. So, in this case, the "happy medium" is best.

Sales to working capital (cash turnover rate). This ratio helps you to assess whether you have enough working capital to operate the business, or whether you are cash poor and likely to suffer from problems of cash flow, like being unable to pay bills on time, or having to hold back on needed purchases for lack of ready cash. Working capital is the money needed to operate the business on a daily basis. It changes every time the business makes a sale, collects a payment, or pays an expense. An easy way to determine how much working capital you have is to subtract current liabilities from current equities. What's left is working capital.

Now, how do you determine what's enough working capital for your business? Calculate the sales to working capital ratio and then compare it to the industry rule of thumb of 5 to 6 times.

EXAMPLE: B & E has current assets of $33,749 ($20,000 in inventory plus $12,916 in cash). They have current liabilities of $290 in quarterly taxes due, a short-term inventory loan of $1,300 and $5,000 due this year on a long-term note,or a total of $6,590 in current liabilities. Current assets minus current liabilities is $27,159. Now, divide net sales ($130,000) by working capital ($27,159). Rounded to a whole number, the result is 5. B & E

has adequate working capital for its sales volume.

This ratio varies considerably over the course of a normal business year due to seasonal sales and purchasing. Therefore, it is important to account for seasonal changes when interpreting the ratio. Frequent measurement would probably be misleading for a business that is highly seasonal, but not for a business that was relatively steady across the year.

Some other measures of operating efficiency that might be useful in a business are sales per square foot, sales per hour, and sales per employee.

Sales per square foot is commonly used as a measure of the efficient use of space in a retail business. The sales are divided by the square footage of selling space. This measure can be used for the store as a whole, or for specific departments, or product lines. The results are often used to help make decisions about expanding and contracting space devoted to specific products or categories.

Sales per hour is a measure of the average dollars of sales earned during each hour the business is open. Companies that have computerized sales registers can monitor their sales on an hourly basis and determine which hours of the day, week, month and year are most important to staff at higher levels, and which can be staffed with lower levels of employees.

Sales per employee. In an organization where sales people are primarily responsible for generating and making sales, sales per employee can provide the owner/manager with an average dollar value that has been earned per employee. Armed with this data, high performers can be identified, rewarded and encouraged, and lower performers can be identified, further trained, and monitored to help them improve their performances. In order to have this data, you would need to maintain records of the dollar value of each sale, and which employee made the sale.

Net Sales to Total Assets. A comparison of net sales to total assets demonstrates how efficiently the assets of the business are being used to generate sales. Assets include cash, inventory, land and buildings, equipment and tools, everything that is owned minus depreciation. The ratio is meaningful only when it can be compared to other firms in the same business category. The goal is to be average or better. A below-average ratio probably indicates the sales volume is inadequate for the asset size of the business.

net sales/net total assets

NOTE: Include cash, inventory, land, buildings, equipment, tools, everything owned minus depreciation in net total assets.

EXAMPLE: Brandt & Erickson have $33,938 in net total assets ($35,894 in assets minus $1,955 in depreciation) and sales of $130,000. B&E's asset turnover is 3.83. While this ratio is primarily useful when compared to asset turnover ratios from previous years, a high asset turnover ratio generally indicates a business with good management flexibility and the

capacity to respond rapidly to opportunities and problems.

Ratio analysis is an analytical tool you can use to see how your business's financial affairs compare year to year and to other business firms in the same industry. The information and data gained from ratio analysis will help you make more informed business decisions and keep your business economically viable.

RATIO ANALYSIS PROCESS

Step 1. Calculate the ratios using the information above.

Step 2. Maintain records of these ratios over time so they can be charted and changes can be detected early.

Step 3. Compare the ratios of this business against similar businesses. Some industry sources are Robert Morris & Associates, Dun and Bradstreet, and Tray's Almanac of Business and Financial Ratios. These sources are available in many libraries and bankers' offices.

Step 4. Discuss the results with your business advisors. The key question to ask is whether you are satisfied with the profitability, health, and operating efficiency of your business. If not, it's time to dig further and find out what you can do to improve results.

Step 5. Determine what areas may need adjustment and develop action strategies to accomplish those adjustments. Put those strategies into action.

Step 6. Measure results at the end of the next fiscal period to make sure your strategies are working.

DUN & BRADSTREET

Dun & Bradstreet has been publishing "Industry Norms and Key Business Ratios" since 1932. These financial ratios cover 22 retail, 32 wholesale, and 71 industrial lines of business. Your banker or local public library will have access to these references, or they are available from Dun & Bradstreet/ One Diamond Hill Road/ Murray Hill, NJ 07974/ phone: 908-665-5000 or 1-800-234-3867/ http://www.dnbcorp.com.

ROBERT MORRIS ASSOCIATES

Long noted among bankers for their extensive work in the field of ratio compilation and analysis is Robert Morris Associates, a national association of bank loan and credit officers. Founded in 1914, this organization's size is indicated by the fact that its membership comprises more than 1,200 commercial banks. Its activities include maintenance and advancement of standards of correct credit practice.

Robert Morris Associates has developed annual statement studies for more than 350 lines of business. Those wishing further information may address inquiries to them at P.O. Box 8500, S-1140/ Philadelphia, PA 19178/ phone: 1-800-677-7621/ http://www.rmaq.org.

TROY'S ALMANAC

Leo Troy's Almanac of business and industrial financial ratios is produced annually. A nice feature is a 10 year summary of key ratios for a wide variety of businesses. It is a useful source of data if you want to focus on other small companies based on the dollar value of assets owned and eliminate large companies from comparison.

GOVERNMENT SOURCES

The Internal Revenue Service of the U.S. Treasury Department annually publishes *Statistics of Income*. This volume contains income statement and balance sheet data compiled from U.S. income tax returns.

Finally, the *Census of Business,* published at 5-year intervals by the Bureau of the Census, provides some ratio and dollar financial information.

Unfortunately, standard industry ratios may have only limited applicability to the operators of small firms and home businesses. Currently available benchmark information on financial ratios for businesses is derived from nationwide samples that may not reflect the conditions faced by small and home business owner-operators. Only one regional study of rural retail businesses has threshold data most applicable for smaller operations, although it is limited by only sampling rural businesses in 12 states. Still, data were collected from more than 450 businesses using both telephone and mailed surveys. A report of the study's findings can be obtained from Michigan State University, Extension Bulletin Office, 10B Agriculture Hall, East Lansing, MI 48824-1039 telephone 517-355-0240. Ask for NCR Publication 555, *Rural Retailers: Financial Profile of High-Profit, Medium-Profit and Low-Profit Firms*.

RED FLAGS

Compiled below are some signs that the business may be experiencing difficulty, along with some possible causes of the difficulty. Some of these signals rely on interpreting the financial ratios you've calculated.

Sluggish Sales.

- Market position slipping.
- Sales figures stabilized; no growth apparent.
- Actual sales below those predicted.
- Sales-to-inventory ratio low compared to industry standards.
- Customer complaints frequent: merchandise returns climbing.

Possible Causes:

- Satisfaction with the status quo; obsolete or hard-to-sell items in sales lines.
- Failure to develop new products and services.
- Location inadequate; changing traffic patterns.
- Inattention to or inaction within a changing market.
- Poorly developed marketing efforts; erratic price cuts; hot-and-cold sales tactics

substituted for coordinated marketing plan.
- Nonexistent market; initial failure to research market and target customer.
- Poor employee training in sales or service.

Deterioration of Operating Capital.

- Current ratio (current assets/current liabilities) lower than industry average.
- Acid test ratio (current assets minus inventory/current liabilities) lower than industry average.
- Accounts payable increasing; cash discounts not taken on purchases.
- Bank balance low; overdrafts and returned checks occurring regularly.
- Loan payments delinquent; suppliers threaten cash on delivery (COD) shipments only.
- Owner continually chasing dollars instead of running the business.

Possible Causes:

- Continuing operational losses.
- Unusual, nonrecurring losses (theft, fire, adverse one-time circumstances)
- Paying excessive salaries, bonuses, owner's draw.
- Over investment in fixed assets from operating capital.
- Taking on too much debt for the size of the business and allowing business to run short of available cash.
- Temporary cash shortage caused by buildup of expenses to meet large contract and/or slow payment of a large credit account.
- Lengthening of collection periods on accounts receivable (see average collection period ratio).
- Over investment in slow-moving inventory.

Declining Profits (or Increasing Losses).

- Return on sales ratio (operating profit/sales revenues X 100) low compared to industry average.
- Net sales/net total assets below industry standard.
- Inventory turnover rate lower than industry average.

Possible Causes:

- Lack of inventory balance; erosion of profits by costs of deadweight items.
- Poor organization within firm; cost control efforts hampered due to owner is trying to "do it all," or no controls at all.
- Lack of planning; improper scheduling of inventory, inadequate equipment maintenance with resultant delays or duplication of efforts.
- Improper pricing policies; not reflective of actual costs.
- Wrong or poor product choices for market demand.

Mounting Debt.

- Cash flow insufficient to take proper advantage of discounts.
- Accounts payable increasing.
- Current ratio lower than industry average.
- Business the target of creditors' liens.

Possible Causes:

- Over investment in fixed assets.
- Over purchase of supplies or inventory.
- Slow sales.
- Increased expenses.
- Failure to plan cash flow position.

Most of these adverse conditions can be turned around by a change in financing or operation methods. Using the information you've harvested from your financial ratios to alert yourself to potential problems is a critical first step. Additional analysis can help you determine what action should be taken.

REFERENCES

Burkhar-Kriesel, C.A. (2010, April). Setting up your own business: Monitoring the health and growth of your business. *University of Nebraska-Lincoln Cooperative Extension*, G2009. Retrieved from http://www.ianrpubs.unl.edu/pages/publicationD.jsp?publicationId=1283

CPAclass (2012). Financial Ratios. Found at: http://cpaclass.com/fsa/ratio-01a.htm Oct, 2012.

Gill, J.O. (1994). *Financial Basics of Small Business Success*. Crisp Publications.

McConnon, J.C & French, F.M. (2008). Home-based business fact sheet: Keeping your business on track, Part III. *University of Maine Cooperative Extension*, #3002. Retrieved from http://umaine.edu/publications/3002e/

NetMBA (2012). Financial Ratios. Found at: http://www.netmba.com/finance/financial/ratios/ Oct, 2012.

Peabody, M. (2008). Financial Ratios. Found at: http://www.extension.org/pages/11510/financial-ratios Oct, 2012.

U. S. Small Business Administration (2012> Credit Factors. Found at: http://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/how-prepare-your-loan-application/cr Oct, 2012.

Wikipedia (2012> Financial Ratio. Found at: http://en.wikipedia.org/wiki/Financial_ratio Oct, 2012.

* Includes a glossary of key terms on income statements and balance sheets.

HANDOUT 2

BRANDT & ERICKSON, INC. INCOME STATEMENT

Sales	$130,000
Beginning inventory	10,000
Purchases	75,000
Ending inventory	20,000
Cost of goods sold	65,000
Gross margin	**65,000**
Less expenses:	
Payroll	26,400
Owner's Salary	20,000
Rent	8,808
Advertising	6,075
Freight	648
Supplies	264
Telephone/FAX	700
Utilities	800
Insurance	560
Payroll taxes	3,504
Licenses	100
Inventory loan	1,300
Maintenance	240
Legal and accounting	1,550
Miscellaneous	480
Depreciation	1,140
Other	400
Leasehold improvements	3,000
Total expenses	**$ 55,969**
Net profit from operations	9,031
Less interest expense	(2,043)
Net income before taxes	6,988
Taxes	(1,362)
Net income after taxes	**$ 5,626**

Prepared by Barbara Rowe, Family Resource Management Extension Specialist, and Holly Schrank, Professor, Purdue University.

HANDOUT 3

BRANDT & ERICKSON, INC. BALANCE SHEET

(December 31, 20xx)

Current Assets	
Inventory	$20,000
Cash	12,916
Fixed	
Equipment	4,833
Less accumulated depreciation	(1,955)
Utility deposits	100
Total assets	***$35,894***
Current Liabilities	
Quarterly taxes due	$290
Notes payable this year	5,000
Inventory loan	1,300
Total current liabilities	***$6,590***
Long-term Liabilities	
Note payable	6,982
Total liabilities	***$13,572***
Owner's equity	$22,322
Total liabilities and owner's equity	***$35,894***

Prepared by Barbara Rowe, Family Resource Management Extension Specialist, and Holly Schrank, Professor, Purdue University.