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### INTRODUCTION

The purpose of this document is to introduce several pertinent financial ratios that can be used to measure the financial position and operating effectiveness of your company. This does not attempt to actually analyze the numbers, but teach you how to calculate the different ratios and how you can interpret them.

Financial Ratios, properly used, reveal strengths and weaknesses within the structure of the company which will enable or prohibit the achievement of long term strategic goals. While there are no concrete "right" or "wrong" ratios for any business, there are suggested target numbers that are put into the spreadsheet. Each must be considered only as a basis for comparing your company's situation to what seems to be happening with other companies in the same business.

### THE RATIOS

**CURRENT RATIO:** this is computed by dividing current assets by total current liabilities.

This ratio is a rough indication of the firm's ability to service its current obligations. Generally, the higher the current ratio, the greater the "cushion" between current obligations and a firm's ability to pay them. The stronger ratio reflects a numerical superiority of current assets over current liabilities. However, the composition and quality of the current assets is a critical factor in the analysis of a firm's liquidity. The ratio measures the short-run debt paying ability of a firm.

**QUICK RATIO:** This is computed by dividing cash and equivalents plus accounts receivable by total current liabilities.

This ratio is also known as the "Acid Test" or "Acid Quick" ratio, and is a refinement of the current ratio and is considered to be a more conservative measure of liquidity. This ratio expresses the degree to which a company's current liabilities are covered by the most liquid current assets. Generally any value of less than 1 to 1 implies a reciprocal dependency on inventory or other current assets to liquidate short-term debt. The ratio measures the short-term liquidity of a firm.

**A/R TURNOVER RATIO/DAYS RECEIVABLE:** This is computed by dividing net sales by trade receivables, then by dividing the Sales/Receivable ratio (developed in the above) into 365 (number of days in the year).

This ratio measures the number of times trade receivables turn over during the year. The higher the turnover of receivables, the shorter the time between a revenue-generating activity and cash collection. If a company's receivables appear to be turning slower than the industry average, further research would be required and the quality of the receivables would be examined closely. The ratio indicates the effectiveness of collections.

The days receivable expresses the average time in days that receivables are outstanding. Generally, the greater number of days outstanding, the greater the probability of delinquencies in accounts



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receivable. A comparison of a company's daily receivables may indicate the extent of a company's control over credit and collections. The terms offered by a company to its customers, however, may differ from terms generally accepted throughout the industry and must be taken into consideration in any analysis.

**A/P TURNOVER/DAYS PAYABLE:** This is computed by dividing the total cost of sales by total trade payables, and then by dividing the cost of sales/payable ratio (computed in the above) into 365 (days in the year).

This ratio measures the number of times trade payables turn over during the year. The higher the turnover of payables, the shorter the time between purchase and payment. If a company's payables appear to be turning more slowly than the industry average, then the company may be experiencing cash shortages, disputing invoices with suppliers, enjoying extended terms, or deliberately expanding its trade credit.

\*\*\*Bear in mind that one of the most effective ways of managing cash flow is to collect receivables as quickly as possible, and to pay payables as late as possible. Therefore, both of these ratios (Days payable and days receivable) need to be analyzed together.

**WORKING CAPITAL TURNOVER RATIO:** This is computed by dividing net sales by net working capital ( current assets less current liabilities = net working capital).

This ratio is a measure of the margin of protection for current creditors. It reflects the ability of a company to finance current operations. Relating the level of sales arising from operations to the underlying working capital measures how efficiently working capital is employed. A low ratio may indicate an inefficient use of working capital while a very high ratio often signifies over-trading which is a vulnerable position for creditors.

**TIMES INTEREST EARNED RATIO:** This is computed by dividing earnings (profit) before annual interest and taxes by annual interest expense.

This ratio is a measure of a firm's ability to meet interest payments. A high ratio may indicate that a borrower would have little difficulty in meeting the interest obligations of a loan. This ratio also serves as an indicator of a firm's capacity to take on additional debt.

**RETURN ON INVESTMENT:** This is computed by dividing profit before taxes by total assets.

This ratio expresses the pre-tax return on total assets and measures the effectiveness of management in employing the resources available to it.

**FIXED ASSET TURNOVER:** This is computed by dividing net sales by net fixed assets (net of accumulated depreciation).

This ratio is a measure of the productive use of a firm's fixed assets. Largely depreciated fixed assets or a labor intensive operation may cause a distortion of this ratio.



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**TOTAL ASSET TURNOVER:** This is computed by dividing net sales by total assets.

This ratio is a general measure of a firm's ability to generate sales in relation to total assets. It is used to determine the effective employment of assets.

**DEBT TO TOTAL ASSETS:** This is computed by dividing the total liabilities of the company by the total assets.

This ratio, generally called the debt ratio, measures the percentage of total funds that have been provided by creditors. If the ratio is high, the business may have incurred too much debt. As a general guideline, the lower the ratio, the less chance that creditors will lose money if the company is liquidated. Therefore, creditors tend to prefer a low ratio.

**DEBT-TO-EQUITY RATIO:** This is computed by dividing the total liabilities by the equity in the company.

This ratio compares the firms' debt financing to the amount of owner/shareholder financing. It is similar to the Debt-To-Assets Ratio in that it examines the amount of resources provided by owners and creditors. It is often valuable to long-term creditors and bondholders. As a general guideline, the lower the Debt-To-Equity Ratio, the less chance the creditors will lose money if the company is liquidated or some other financial problem occurs.

A high Debt-To-Equity Ratio indicates that a low portion of the firm's financing needs is provided by equity funds. Since creditors associate a high Debt-To- Equity Ratio with high risk, this ratio may be especially important if a firm needs to raise funds by incurring more debt.

**CURRENT LIABILITIES TO NET WORTH:** This is computed by dividing the current liabilities by the net worth, or equity, of the company.

This contrasts the funds that creditors temporarily are risking with the funds permanently invested by the owners. The smaller the net worth and the larger the liabilities, the less security for the creditors.

### THE SPREADSHEET

The most straightforward method of calculating these ratios is through the use of an Excel spreadsheet. The exact format depends on the user's preferences; however, the spreadsheet should have the following features:

- The ability to have the user enter the needed numbers for analysis on an 'input' tab. These numbers can be obtained from the P&L and the balance sheet.
- The ability to automatically calculate the ratios that have been discussed in this document.
- In more advanced spreadsheets, the ability to automatically notify the user when there is an unfavourable variance from a specified target ratio.



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See below for an example of the type of spreadsheet that can be put together to accomplish the above.

	A	B
3		
4	<b>From Balance Sheet</b>	
5		
6	Current Assets:	\$ 500,000
7	Current Liabilities:	\$ 400,000
8	Total Checking/Savings:	\$ 200,000
9	Trade/Account Receivables:	\$ 250,000
10	Trade/Accounts Payable:	\$ 150,000
11	Total Assets:	\$ 600,000
12	Net Fixed Assets:	\$ 70,000
13	Total Liabilities:	\$ 500,000
14	Stockholders' Equity:	\$ 100,000
15		
16	<b>From Profit &amp; Loss Statement:</b>	
17		
18	Net Sales (Annual):	\$ 2,500,000
19	Cost of Sales:	\$ 2,000,000
20	Profit before Taxes & Interest Charges:	\$ 80,000
21	Interest Charges:	\$ 1,500
22		
23		

**Input Sheet Tab:** From the Balance Sheet and the Profit and Loss statement, enter the numbers into Column B that correspond to the accounts listed in Column A.

	A	B	C	D	E	F
1						
2	<b>Current Ratio</b>					
3	Current Assets:	\$ 500,000				
4	Current Liabilities:	\$ 400,000				
5	<b>Current Ratio:</b>	<b>1.25</b>	<b>UNFAVORABLE VARIANCE</b>			
6	Target CR:	2.00	(The higher, the better)			
7						
8	<b>Quick Ratio</b>					
9	Cash & Equivalents	\$ 200,000				
10	Trade/Account Receivables	\$ 250,000				
11	Total	\$ 450,000				
12	Total Current Liabilities	\$ 400,000				
13	<b>Quick Ratio:</b>	<b>1.13</b>				
14	Target Quick Ratio:	1.00	(The higher, the better)			
15						
16	<b>AR Turnover Ratio/Days Receivables</b>					
17	Net Sales (Annual)	\$ 2,500,000				
18	Accounts Receivable	\$ 250,000				
19	<b>AR Turnover Ratio:</b>	<b>10</b>	<b>UNFAVORABLE VARIANCE</b>			
20	Target AR Turnover Ratio	15	(The higher, the better)			
21	Days in a year	365				
22	<b>Day's Receivables:</b>	<b>37</b>	<b>UNFAVORABLE VARIANCE</b>			
23	Target Day's Receivables	24	(The lower, the better)			
24						
25	<b>AP Turnover Ratio/Days Payables</b>					
26	Cost of Sales	\$ 2,000,000				

**Calculation of Ratios Tab:** The spreadsheet automatically calculates the appropriate ratios on a separate tab; if there is an unfavourable variance, the message appears in column D.

**Input sheet tab:** Enter the relevant numbers into column B for the relevant accounts that are listed in column A. The numbers for the first few accounts can be obtained from the balance sheet; the rest can be found on the P&L statement. NB- use a P&L for the year-to-date fiscal year, and use the balance sheet for the current date.

**Calculation of Ratios tab:** All of the ratios that are discussed in this document are automatically calculated here.

- The numbers are carried over automatically from the previous page.
- The ratio is calculated, and is in bold type. Underneath the calculated ratio, there is a target ratio.
  - The cell to the immediate right of the calculated ratio will return an error message (Unfavourable variance) if the ratio is trending in the wrong direction when compared to the target.