

# Lesson 4 – Financial Ratio Analysis

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## 4.1 Introduction

In this chapter you will learn the followings:

- Explain different types of financial ratio
- Describe and calculate each type of financial ratio
- Explain the purpose and uses of each type of financial ratio
- Explain the implication of each type of financial ratio to the organization

## 4.2 What is Financial Analysis

Financial analysis is the process of evaluating businesses, projects, budgets, and other finance-related transactions to determine their performance and suitability.

Typically, financial analysis is used to analyze whether an entity is stable, solvent, liquid, or profitable enough to warrant a monetary investment.

If conducted internally, financial analysis can help managers make future business decisions or review historical trends for past successes.

Fundamental analysis uses ratios and financial statement data to determine the intrinsic value of a security.

## 4.3 Type of Analysis

Types of financial analysis is analyzing and interpreting data by various types according to their suitability and the most common types of Financial Analysis are

### 4.3.1. Comparative analysis includes:

- vertical analysis
- horizontal analysis
- trend analysis

### 4.3.2. Financial ratio analysis includes:

- Profitability Ratio
- Efficiency Ratio
- Liquidity Ratio

## 4.4 Comparative Analysis

Comparative analysis as comparison analysis. Use comparison analysis to measure the financial relationships between variables over two or more reporting periods.

Businesses use comparative analysis to identify their competitive positions and operating results over a defined period.

Larger organizations may often comprise the resources to perform financial comparative analysis monthly or quarterly, but it is recommended to perform an annual financial comparison analysis at a minimum.

## 4.4.1. Horizontal Analysis

- Horizontal analysis is used in the review of a company's financial statements over multiple periods.
- It is usually depicted as percentage growth over the same line item in the base year.
- Horizontal analysis allows financial statement users to easily spot trends and growth patterns.
- Horizontal analysis shows a company's growth and financial position versus competitors.
- Horizontal analysis can be manipulated to make the current period look better if specific historical periods of poor performance are chosen as a comparison.

### Example Horizontal Analysis – This Year vs Last Year

<b>Safeway Stores</b>				
<b>Comparative Balance Sheets</b>				
			<u>Increase or Decrease</u>	
<b>Assets</b>	<b>2019</b>	<b>2018</b>	<b>Amount</b>	<b>Percentage</b>
Current Assets:	\$	\$	\$	%
Cash and short-term investments	74,442	75,574	(1,132)	(1.50)
Receivables	105,166	91,642	13,524	14.76
Merchandise inventories	1,563,244	1,433,254	129,990	9.07
Prepaid expenses and other current assets	118,537	128,676	(10,139)	(7.88)
<b>Total Current Assets</b>	<b>1,861,389</b>	<b>1,729,146</b>	<b>132,243</b>	<b>7.65</b>
Property				
Land	236,876	210,427	26,449	12.57
Buildings	345,001	305,006	39,995	13.11
Leasehold improvements	557,504	459,711	97,793	21.27
Fixtures and equipment	2,023,914	1,789,136	234,778	13.12
Transport equipment	186,485	173,576	12,909	7.44
Property under capital lease	1,144,409	1,155,493	(11,084)	(0.96)
	4,494,189	4,093,349	400,840	9.79
Less: Accumulated depreciation and amortization	1,894,333	1,731,138	163,195	9.43
<b>Total property, net</b>	<b>2,599,856</b>	<b>2,362,211</b>	<b>237,645</b>	<b>10.06</b>
Excess of cost over net assets acquired	16,588	16,557	31	0.19
Other Assets	59,396	66,449	(7,053)	(10.61)
<b>Total Assets</b>	<b>4,537,229</b>	<b>4,174,363</b>	<b>362,866</b>	<b>8.69</b>

Prepare a vertical analysis of the income statement for Cookie & Coffee Creations for 2020 and 2019

COOKIE & COFFEE CREATIONS INC.				
Income Statement				
For the Year Ended October 31				
	2020	Vertical Analysis	2019	Vertical Analysis
Sales	\$485,625		\$462,500	
Cost of goods sold	222,694		208,125	
Gross profit	262,931		254,375	
Operating expenses				
Salaries & wages expense	147,979		146,350	
Depreciation expense	17,600		9,100	
Other operating expenses	48,186		42,925	
Total operating expenses	213,765		198,375	
Income from operations	49,166		56,000	
Other expenses				
Interest expense	413		0	
Loss on sale of computer equipment	2,250		0	
Total other expenses	2,663		0	
Income before income tax	46,253		56,000	
Income tax expense	9,251		14,000	
Net income	\$37,002		\$42,000	

## 4.4.2. Vertical Analysis

- Vertical analysis makes it easier to understand the correlation between single items on a balance sheet and Income Statement and expressed in a percentage.
- Vertical analysis can become a more potent tool when used in conjunction with horizontal analysis, which considers the finances of a certain period.
- Vertical analysis makes it much easier to compare the financial statements of one company with another, and across industries. This is because one can see the relative proportions of account balances.

- It also makes it easier to compare previous periods for time series analysis, in which quarterly and annual figures are compared over a number of years, in order to gain a picture of whether performance metrics are improving or deteriorating.
- For example, by showing the various expense line items in the income statement as a percentage of sales, one can see how these are contributing to profit margins and whether profitability is improving over time. It thus becomes easier to compare the profitability of a company with its peers.
- Financial statements that include vertical analysis clearly show line item percentages in a separate column.

Example of Vertical Analysis – Sales Value become a base to evaluate the portion of each line item over sales

	2018		2017	
	Amount (\$)	%	Amount (\$)	%
Sales	198,000	100	176,000	100
COGS	*104,000	52.53	**98,000	55.68
Gross Profit	<b>94,000</b>	47.47	<b>78,000</b>	44.32
Operating Expenses	7,600	3.84	8,000	4.55
Income before Tax	86,400	43.64	70,000	39.77
Income Tax	21,600	10.91	17,500	9.94
Net Income	<b>64,800</b>	32.73	<b>52,500</b>	29.83

## 4.5 Financial Ratio Analysis

Ratio analysis compares line-item data from a company's financial statements to reveal insights regarding profitability, liquidity, operational efficiency, and solvency.

Ratio analysis can mark how a company is performing over time, while comparing a company to another within the same industry or sector.

Below are fundamental used categories of ratios:

- liquidity ratios
- profitability ratios
- efficiency ratio

### 4.5.1. Profitability Ratio

Profitability ratios assess a company's ability to earn profits from its sales or operations, balance sheet assets, or shareholders' equity.

Profitability ratios indicate how efficiently a company generates profit and value for shareholders.

Higher ratio results are often more favorable.

Profitability ratios are one of the most popular metrics used in financial analysis, and they generally evaluate using margin ratios.

Margin ratios give insight, from several different angles, on a company's ability to turn sales into a profit.

Margin Ratio includes:

#### 4.5.1.1. Gross Profit Margin

Gross profit margin is a metric analysts use to assess a company's financial health by calculating the amount of money left over from product sales after subtracting the cost of goods sold (COGS). Sometimes referred to as the gross margin ratio, gross profit margin is frequently expressed as a percentage of sales.

#### 4.5.1.2. Net Profit Margin

Net profit margin measures how much net income is generated as a percentage of revenues received.

Net profit margin helps investors assess if a company's management is generating enough profit from its sales and whether operating costs and overhead costs are being contained.

Net profit margin is one of the most important indicators of a company's overall financial health.



## 4.5.2. Efficiency Ratio

measure a company's ability to use its assets and manage its liabilities effectively in the current period or in the short-term

Although there are several efficiency ratios, they are similar in that they measure the time it takes to generate cash or income from a client or by liquidating inventory.

Below are few efficiency ratios that are commonly used.

### 4.5.2.1. Inventory Turnover Period/Ratio

Inventory includes all the goods a company has in its stock that will ultimately be sold.

Inventory turnover indicates the rate at which a company sells and replaces its stock of goods during a particular period.

The inventory turnover ratio formula is the cost of goods sold divided by the average inventory for the same period.

The higher the inventory turnover, the better, since high inventory turnover typically means a company is selling goods quickly, and there is considerable demand for their products.

Low inventory turnover, on the other hand, would likely indicate weaker sales and declining demand for a company's products.

Inventory turnover may also measure in number of days. It is interpreting how many days the company use to convert its stock to sales.

The lower the number of inventory days the better because it is using lesser day to convert the stock to sales and eventually cash vice versa.

#### 4.5.2.2. Receivables Turnover Period/Ratio

The accounts receivable turnover ratio is an accounting measure used to quantify a company's effectiveness in collecting its receivables or money owed by clients.

A high receivables turnover ratio may indicate that a company's collection of accounts receivable is efficient and that the company has a high proportion of quality customers that pay their debts quickly.

A low receivables turnover ratio could be the result of inefficient collection, inadequate credit policies, or customers who are not financially viable or creditworthy.

Receivable efficiency may also calculate in Receivable days, which is how many days per year averagely needed by a company to collect its receivables.

A lower receivable day reflects faster cash collection.

#### 4.5.2.3. Payables Turnover Period/Ratio

The accounts payable turnover ratio is a short-term liquidity measure used to quantify the rate at which a company pays off its suppliers. Accounts payable turnover shows how many times a company pays off its accounts payable during a period.

The accounts payable turnover ratio shows how efficient a company is at paying its suppliers and short-term debts.

Ideally, a company wants to generate enough revenue to pay off its accounts payable quickly, but not so quickly the company misses out on opportunities because they could use that money to invest in

other endeavors. Therefore, the high payable ratio the slower the company use its cash to pay creditors and may use this fund to invest to increase profit.

Payable efficiency may also calculate in Payable days, which is how many days per year the company pay its payables.

A higher payable day reflects the slower the repayment to its creditors, it may advantage to the company if the company using this fund to do other investment to generate more profit.

A higher payable day may also interpret that the company having liquidity issue and need to take longer time to settle its debts and vice versa.

### 4.5.3. Liquidity Ratio

Liquidity ratios are an important class of financial metrics used to determine a debtor's ability to pay off current debt obligations without raising external capital.

Common liquidity ratios include the quick ratio and current ratio.

Liquidity ratios determine a company's ability to cover short-term obligations and cash flows, while solvency ratios are concerned with a longer-term ability to pay ongoing debts.

### 4.5.3.1. Current Ratio

The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year.

The current ratio compares all a company's current assets to its current liabilities.

These are usually defined as assets that are cash or will be turned into cash in a year or less, and liabilities that will be paid in a year or less.

To calculate the ratio, analysts compare a company's current assets to its current liabilities.

Current assets listed on a company's balance sheet include cash, accounts receivable, inventory, and other current assets (OCA) that are expected to be liquidated or turned into cash in less than one year.

Current liabilities include accounts payable, wages, taxes payable, short-term debts, and the current portion of long-term debt.

The higher the current ratio is the better the company perform as their short-term assets is sufficient to settle their short term liabilities when they fall due.

A ratio under 1.00 indicates that the company's debts due in a year or less are greater than its assets—cash or other short-term assets expected to be converted to cash within a year or less.

### 4.5.3.2. Quick Ratio

The quick ratio is an indicator of a company's short-term liquidity position and measures a company's ability to meet its short-term liabilities with its most liquid assets.

Meaning, the ability of the company the fastest to convert its current assets to pay its current liabilities.

The higher the ratio result, the better a company's liquidity, and financial health; the lower the ratio, the more likely the company will struggle with paying debts.

To calculate this ratio, the company commonly will exclude its stock from current assets because logically thought saying it is hard to immediately convert stock to cash overnight.

Some company will exclude those current assets that not able to convert to cash for example prepayment because this is prepaid expenses that already paid and hardly cover back.

Note: Kindly refer to formula sheet for details explanation.