Chapter 15
FINANCIAL STATEMENT ANALYSIS

In this chapter, you will learn about the information that is included in each financial statement, the correct term for every item in each statement, and how to read and understand the three types of statements. By looking at examples of statements, you will see how the information is provided and how the information is used to perform the analysis to get an overall picture of a company's performance.

Learning Objectives

After reading this chapter, students will be able to:

- Understand and interpret the company's income statement, balance sheet, and statement of cash flows.
- Learn how to build an entire cash flow statement based on 2-year balance sheet information
- Learn how to calculate standard measures of the company's liquidity, solvency and operating efficiency
- Understand the difference between income and cash flows
- Understand Book Value vs Market Value and Real Assets vs Financial Assets

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AUTHOR'S NOTES:

What makes a perfect financial analysis

To get a perfect financial analysis done when reviewing the financial statements, the analyst needs to answer the following three questions:

1. *How is the company performing versus last year or the last few years (chronological analysis)?*
2. *How is the company performing versus their peers or versus the benchmark (peer analysis)?*
3. *How is the company performing versus analyst expectations (expectation analysis)?*

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Financial Statements Overview

There are three primary financial statements: Income Statement, Balance Sheet and Cash Flow Statement. Public traded companies are required to include audited financial statements in their annual and quarterly reports. The Securities Exchange Commission (SEC) requires the public traded companies to file one 10K and three 10Q reports per year representing their annual and quarterly performance, respectively. These detailed statements can be found on the company's filings in the SEC's EDGAR system. Also are usually available on the company's website under "Investor Relations" and other financial websites such as www.finance.yahoo.com and www.google.com/finance. In addition to the statements, the company discusses their performance found in the Management, Discussion and Analysis (MD&A) section as well as provides detailed footnotes to each of the statements.

To evaluate publicly traded companies, analysts who represent different investors need uniform financial standards that are consistent, accurate and complete. Public accounting organizations around the world have set up global accounting standards. The biggest organization, the International Financial Reporting Standards (IFRS), is gradually replacing country-specific standards. Developed by the Financial Accounting Standard Board (FASB), the US still recognizes Generally Accepted Accounting Principals (GAAP) regulated by the SEC. However, the US is gradually unifying to the IFRS standards.

INCOME STATEMENT

[Insert Boxed text here

KEY TAKEAWAYS:

- *The Income statement represents the measurement of Profit and Loss over Period of time*
- *The "Top Line" is the company's sales and the "Bottom Line" is the Company's Net Income*
- *Revenue (Sales) Less Expenses = Profit or Loss*

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The Income Statement is a summary of the company's profit or loss over a period. It reports the revenues, expenses and net profit or net loss over a quarter or a full year. It's also referred to as Profit and Loss Statement or "P&L". The Income statement drives the company's reported quarterly earnings per share (EPS). It is usually accompanied by a Statement of Comprehensive Income, which reconciles the income statement to account for investments made by owners of the company.

The Income Statement is very useful when comparing revenues, expenses and profits for the period and for one or more prior periods. For example, this quarter's results can be compared to two prior quarters or same quarter from last year (this is called "year-over-year" or "YoY").

The Income Statement demonstrated in figure 15.1 below is basically broken down into top-line revenues and two types of expenses including cost-of-revenues and operating expenses. The difference between revenues and these expenses calculates the company's income from operations before other expenses such as interest and taxes. Net income or the company's bottom line is derived after these expenses are subtracted.

[INSERT FIGURE 15.1]

Celerity Technogy Inc. ("CTI")

Financial Statement Analysis

	Income Statement (000's)	Year 1	Year 2	Operating Ratios for Year 2	
8	**Revenues by Geography**			Rev. Growth	% Breakdown
9	U.S.	800,000	920,000	15.0%	82.9%
10	Europe	120,000	140,000	16.7%	12.6%
11	Asia	40,000	50,000	25.0%	4.5%
12	Total Revenue	960,000	1,110,000	15.6%	100.0%
14	**Cost of Revenues by Geography**			Gross Margin	Gross Profit
15	U.S.	293,000	350,000	62.0%	570,000
16	Europe	39,000	50,000	64.3%	90,000
17	Asia	13,000	20,000	60.0%	30,000
18	Total Cost of Revenue	345,000	420,000	62.2%	690,000
20	Gross Profit	615,000	690,000		
22	**Operating Expenses**			As % of Sales	
23	Administrative & General	145,000	165,000	14.9%	
24	Marketing Expenses	75,000	80,000	7.2%	
25	Other Operating Expenses	10,000	12,000	1.1%	
26	Total Operating Expenses	230,000	257,000	23.2%	
28	**EBITDA**	385,000	433,000	39.0%	(EBITDA Margin)
30	**Depreciation**	60,000	65,000	5.9%	Deprec.as % of Revenues
32	**EBIT**	325,000	368,000	33.2%	EBIT Margin
34	**Interest Expense**	130,000	120,000	10.0%	Interest Rate
36	EBT	195,000	248,000	Interest Exp. / (Avg Debt incl. LT and ST)	
38	**Taxes**	78,000	99,200	40.0%	Tax Rate
40	Net Income	117,000	148,800	13.4%	NI Margin

Figure 15.1

Revenues

Revenue (or Sales) is the first line item on the Income Statement. **Revenues represent the total dollar amount realized by companies for the sale of products and services at a given period**. Revenues could be itemized by product, segment, division or geographical location. In analyzing revenues, an analyst looks at the drivers of such revenues. The drivers could be volume, price or contractual obligations. These drivers will be discussed in later chapters.

Expenses

Expenses reported in the Income Statement are generally broken down into two parts:

1) Direct cost or Cost of Revenue or Cost of Good Sold (COGS); and
2) Indirect cost or Operating Expenses or Selling, General & Administrative Expenses (SG&A)

Cost of Revenues

Cost of Revenues (or Cost of Goods Sold "COGS") includes the direct costs of selling the goods of

the company. These expenses include raw material, labor and overhead (MLO). Cost of Revenues captures expenses that are variable based on sales volume or units sold.

Operating Expenses

Operating expenses include the fixed cost of running a company that are not directly related to the sales volume or number of units sold. Operating expenses are also referred to as Selling, General & Administrative expenses (SG&A). SG&A includes administrative costs such as the CEO's salary, marketing costs such as advertising and general costs such as office supplies and other office expenses. In addition to the SG&A expenses, publicly traded companies include non-cash expenses such as Depreciation and Amortization.

Operating Income or EBIT

Revenues minus Operating Expenses result to Operating Income or Earnings before Interest and Taxes (assuming the Depreciation and Amortization Expenses are included in the Operating Expense section). Usually private companies exclude Depreciation and Amortization Expenses from the Operating Expense section resulting to Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) – discussed in the next paragraph.

Earnings Before Interest, Taxes, Depreciation and Amortization or EBITDA

For publicly traded companies, Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) is not usually found in the income statement. This is calculated by adding back Depreciation and Amortization (D&A) to EBIT or operating income. This income line is commonly used to estimate the operating cash flow of the company. EBITDA is used in various methods to estimate the value of the firm – discussed in later chapters.

Net Income

Net Income represents the bottom line profit or loss of the company after tax and interest expenses and after other non-ordinary expenses such as dividends, one-time or non-recurring expenses. Net Income or earnings after taxes represent the value-added owner's creating of the firm to last year's earnings.

BALANCE SHEET STATEMENT

[Insert Boxed text here

KEY TAKEAWAYS:

- *The Balance sheet shows us on a snap shot of the wealth of the company*
- *The Balance sheet statement is set-up in order of liquidity*
- *Its called the Balance sheet because the left side representing the assets is showing what the company processes and the right side representing how they paid for these processions.*

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The Balance Sheet represents the wealth or the financial condition of the company. Unlike the Income Statement, which measures company performance over a quarter or a year, the Balance Sheet is a snapshot of all of company's assets representing everything the company owns (Cash, Equipment, investments, etc), liabilities representing what the company owes against those assets and the company's

net worth or shareholder's equity representing what the owner's keep or earned, taken at a moment in time as demonstrated in figure 15.2 below.

[INSERT FIGURE 15.2]

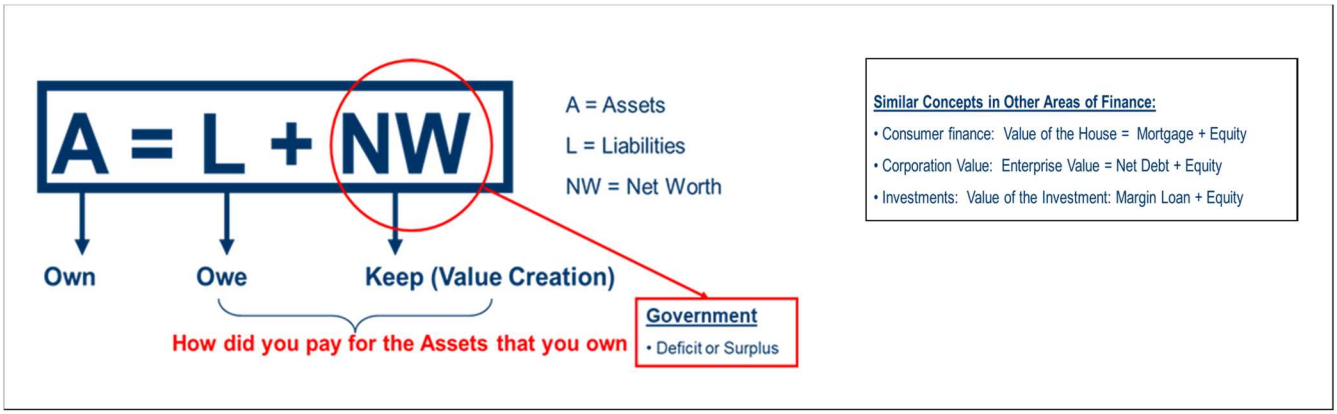

Figure 15.2

Assets

This section of the balance sheet gives a list of the assets of the company. The statement is formatted to start from the most liquid assets to the least liquid. The first section on the top of the Assets is Current Assets representing assets that should turn to cash within the next 12 months. These are followed by Non-Current Assets that includes tangible and intangible assets such as Goodwill.

Current Assets: Current assets includes Cash and Cash Equivalents, Accounts Receivable, Inventory and other current assets.

- **Cash & Cash Equivalents:** Cash and Cash Equivalents represent the deposit account and/or short-term investments of the company. This cash is accessible within a day or two.
- **Accounts Receivable**: Accounts Receivable represent the money owed to the company by the customer and is considered the second most liquid item on the balance sheet as the customers typically have 30-60 days to pay the company for goods that they bought.
- **Inventory**: Inventory represents the cost of raw materials, work-in-process (WIP) and finished goods that are ready to be shipped. Inventory will usually turn into cash 30-120 days depending of the type of the inventory the company buys, develops and sells.
- **Other Current Assets**: Other current assets include moneys owed to the company for reasons other than customers. It also includes prepaid expenses which are expenses that are prepaid upfront such as insurance fees, annual license fees, etc.

Non-Current Assets: Non-current assets include both tangible and non-tangible assets. Tangible assets include Property, Plant & Equipment, Long-Term Investments and other long-term assets. Intangible assets include Goodwill and other intangible assets such as patterns and trademarks.

- **Gross Property, Plant & Equipment (PP&E):** PP&E represent tangible assets such as buildings, land, equipment, cars and trucks at their book value. The Balance Sheet ignores any appreciation in asset value). Sometimes the company reports the Net PP&E which represents the value of these assets listed above after all depreciation is subtracted from the gross amount.
- **Long-Term Investments:** These could be investments such as Joint-Ventures or other long-term

investments.

- **Goodwill:** Goodwill is created when the company is acquired for a price greater than book value. The difference between the acquisition price and book value is recorded as goodwill.

Liabilities

This section of the balance sheet gives a list of the liabilities of the company. The statement is formatted to start from the most liquid to the least liquid. The first section on top of the Liabilities is Current Liabilities representing the obligations that the company should pay within the next 12 months. These are followed by Long-Term Liabilities which are obligations that extend further that a year into the future.

Current Liabilities

Current Liabilities include outstanding payments to suppliers, short-term debts and obligations due within one year such as accounts payable, short-term interest and tax payables, current portion of long-term debt and other accrued expenses.

- **Accounts Payable:** These are payment obligation due by the company to suppliers – primarily for purchasing inventory or raw material.
- **Income Tax Accruals:** These are short-term income related taxes that are payable within a year.
- **Accrued Expenses:** These are expenses that needed to be paid within a year. These accrued expenses do not include any obligations owed to suppliers.
- **Current Portion of Long Term Debt:** This is the company's debt obligations that are due within a year.

Long-Term Liabilities

- **Long-Term Debt:** Any debt including loans, bonds or mortgages that are due more than a year are included in this section.
- **Deferred Taxes:** These are taxes that are deferred, due and payable in more than a year.
- **Other Liabilities:** Other Liabilities include long term obligations such as contingent liabilities. These include potential payments due to lawsuits, environmental obligations and/or insurance payments.

Net Worth or Shareholder's Equity

Shareholder's equity measures the amount by which a company's assets exceed its liabilities at snap shot in time – basically if one sold all that the company owns after paying all the obligations against these assets the balance left is what the ownership will keep (figure 2). Shareholder's Equity is also referred to as net worth or book value of equity. Included in this section are Common Stock, Preferred Stock, Treasury Stock, Paid-in Capital, other Equity and Retained Earnings.

- **Common Stock:** This represents the original issuance of equity by the owners and it will go down when the company buys back shares.
- **Preferred Stock:** This could be an issuance by third party investor that expect the company to pay certain fixed dividends (like debt obligations).
- **Treasury Stock:** recorded as a negative number on the balance sheet, Treasury Stock represents shares that have been issued in the past but were repurchased by the company. The amount repurchased will reduce both par value and capital surplus on the balance sheet if the company decides to permanently retire the stock that was repurchased. If the company decides to re-issue the stock sometime in the future, the treasury stock will be set-up at a separate account – reducing

common stock and shareholder's equity.

- **Paid-in-Capital:** This represents proceeds from any additional equity investments that invested in the company.
- **Retained Earnings:** Retained Earnings represent the cumulative income net of loses over time. The Retained Earnings could also be reducing if the company pays out dividends to shareholders or records loses.

Calculation of Retained Earnings				
$ millions	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Retained Earnings Beginning	$ 250.0	$ 263.0	$ 240.0	$ 233.0
Plus Net Income	25.0	(20.0)	(5.0)	45.0
Less Dividends Paid	(12.0)	(3.0)	(2.0)	(13.0)
Retained Earnings Ending	$ 263.0	$ 240.0	$ 233.0	$ 265.0

As the example above shows that it is possible for companies to continue paying dividends even in years that the company shows losses. These will of course reduce the Retained Earnings.

Figure 16.3 below shows an example of a balance sheet. Total assets equal to total liabilities plus net worth – hence is called the "balance" sheet statement.

[INSERT FIGURE 15.3]

Celerity Technogy Inc. ("CTI")

Financial Statement Analysis

	Balance Sheet (000's)	Year 1	Year 2	$ Change	% Change
7	**Current Assets**				
8	Cash	45,000	65,800	20,800	46.2%
9	Accounts Receivable	45,000	60,000	15,000	33.3%
10	Inventories	35,000	40,000	5,000	14.3%
11	Prepaid Expenses	10,000	9,000	(1,000)	-10.0%
12	Total Current Assets	135,000	174,800	39,800	29.5%
14	**Property and Equipment**				
15	Land	2,500,000	2,500,000	-	0.0%
16	Building	450,000	550,000	100,000	22.2%
17	Furniture & Equipment	50,000	75,000	25,000	50.0%
18	Total Gross P&E	3,000,000	3,125,000	125,000	4.2%
19	Less Accumulated Depreciaition	(300,000)	(365,000)	(65,000)	21.7%
20	Net P&E	2,700,000	2,760,000	60,000	2.2%
22	Long-Term Investments	200,000	250,000	50,000	25.0%
24	Total Assets	3,035,000	3,184,800	149,800	4.9%
26	**Liabilities and Owners Equity**				
28	**Current Liabilities**				
29	Accounts Payable	35,000	40,000	5,000	14.3%
30	Accrued Income Taxes	12,000	10,000	(2,000)	-16.7%
31	Accrued Expenses	10,000	8,000	(2,000)	-20.0%
32	Current Portion of Long Term Debt	20,000	10,000	(10,000)	-50.0%
33	Total Current Liabilities	77,000	68,000	(9,000)	-11.7%
35	Long-Term Debt:	1,200,000	1,180,000	(20,000)	-1.7%
37	Deferred Income Taxes	12,000	17,000	5,000	41.7%
39	Total Liabilties	1,289,000	1,265,000	(24,000)	-1.9%
41	**Owners' Equity**				
42	Common Stock	1,000,000	1,000,000	-	0.0%
43	Paid-in-Capital	-	25,000	25,000	
44	Retained Earnings	746,000	894,800	148,800	19.9%
45	Total Owners' Equity	1,746,000	1,919,800	173,800	10.0%
47	Total Liabilities & Owner's Equity	3,035,000	3,184,800	149,800	4.9%

Figure 15.3

CASH FLOW STATEMENT

[Insert Boxed text here

KEY TAKEAWAYS:

- *The Cash Flow statement shows the Company's Cash Inflow and Outflow activities over a certain period*

- *The differences between Income Statement and Cash Flow Statement are:*
    - *Timing Differences (Working Capital Activities)*
    - *Capital Expenses Vs Operating Expenses (Investment Activities)*
    - *Financing Expenses not included in the Income Statement (Financing Activities)*

- *The Cash Flow Statement represents the changes from last Year's Balance Sheet to this Year's Balance Sheet*
    - *Asset goes Up = Cash Negative*
    - *Asset goes down = Cash Positive*
    - *Liability goes up = Cash Positive*
    - *Liability goes down = Cash Negative*
    - *Owner's Equity goes up = Cash Positive*
    - *Owner's Equity goes down = Cash Negative*

End boxed text here]

The Cash Flow Statement represents the cash inflow and outflow of the company. The Cash Statement is like the Income Statement when it comes to measuring performance over a period of time. However, it focuses on the actual cash generated or spent by the business. In a perfect world you might not need both the income and cash flow statements. A perfect scenario is described in figure 15.4 below where we use an example of a 9-year old setting up a lemonade stand. In this humorous example the young 9-year old Joey decides to set up a lemonade stand in front of his house. His dad helps him with a $20 to start his lemonade business. Joe uses all the $20 to buy a box of 100 cups ($5), a lemonade concentrated juice ($5) and 4 gallons of bottled water ($10). In this story, we assume that he sells all his lemonade and uses of all 100 cups (no inventory left). Assuming he sold each lemonade for $1, after the end of the day, Joey will set-up an income statement to show his profit. Revenues are recorded at $100 ($1x100 cups) minus his cost of $20 showing a profit of $80. This should match his cash on hand. In this case his simple income statement will be the same as his cash flow statement since every transaction was done with all cash. See both statements below (figure 15.4):

[INSERT FIGURE 16.4a – picture (Left of figure 15.4] **[INSERT FIGURE 15.4]**

Income Vs Cash (timing diference)

The Perfect World: Cash = Income

If every business is run like a lemonade stand by 9-year old

Income Statement		
Lemonade Sales:		
Sold 100 cups @ $1 each		$ 100.00
Expenses:		
Box of 100 Cups	$ 5.00	
Lemonade Conctrate Juice	$ 5.00	
4 Gallons of Water	$ 10.00	
Total Expenses		$ 20.00
Net Income:		$ 80.00

Cash Flow Statement Statement		
Profit		$ 80.00
Cash Flows:		
Plus Money that we owe	$ -	
Less Money owed to us	$ -	
Net Working Capital		$ -
Cash		$ 80.00

Figure 15.4

If we slightly change the story you will see a need for creating both the income and cash flow statements. Suppose that while Joey was selling his lemonade, his friend Billy bought a lemonade but did not have any money to pau for it. He was very thirty he explained, so Joey allowed Billy to have a lemonade and expect to get his one dollar later. At the end of the day, Billy has not showed up. Now if Joey had to build both his income and cash flow statement to keep up with the difference between what he earned and what cash he has as is demonstrated in the figure below (figure 15.5). Joey's Income statement will show a profit of $80 since he sold all his lemonade, but when he looks at his cash flow statement he notices a cash profit of $79. The difference of course is the $1 owed (earned because Joey should eventually get his $1 from Billy the next day). This $1 will recorded as Accounts Receivable and it will be adjusted in cash flows statement to reflect the timing difference between income and cash. This timing difference is basically the definition of working capital as described later in this chapter. We are living is non-perfect world – a world of IOUs.

[INSERT FIGURE 15.4a – picture (Left of figure 15.5] **[INSERT FIGURE 15.5]**

Income Vs Cash (timing diference)

A not so Perfect World: Cash is different than Income

If every business is run like a lemonade stand by 9-year old

Income Statement		
Lemonade Sales:		
Sold 100 cups @ $1 each		$ 100.00
Expenses:		
Box of 100 Cups	$ 5.00	
Lemonade Conctrate Juice	$ 5.00	
4 Gallons of Water	$ 10.00	
Total Expenses		$ 20.00
Net Income:		$ 80.00

Cash Flow Statement Statement		
Profit		$ 80.00
Cash Flows:		
Plus Money that we owe	$ -	
Less Money owed to us	$ (1.00)	
Net Working Capital		$ (1.00)
Cash		$ 79.00

Figure 15.5

The cash flow statement also reflects the fact that the company receives and spends cash other than their primary business (these transactions are not recorded in the income statement which represents the company's direct or primary operations). For example, a company may spend money on new equipment, conduct improvements of manufacturing facilities or decide to issue bonds in the capital markets.
The company's cash position per period (going up or down) does not necessarily represent the company's operating health. For example, the company might decide to use extra cash to repay debt. This decision will result in a lower cash outflow even though it may be positive over time – reducing interest obligations.
The Cash Flow Statement which represents the change in position from one period to the next has three primary sections:

1. Cash Flows from Operating Activities
2. Cash Flow from Investment Activities
3. Cash Flow from Financing Activities

Basically, it is important to realize that one could build an entire cash flow statement by looking at 2 years of balance sheet. The difference of each item on the balance sheet from one year to the next represents the activity for that year and can been seen on the cash flow statement as graphically explained below:

Building the Cash Flow Statement spreadsheet

[Insert boxed text here

KEY TAKEAWAYS:

In building the Cash Flow Statement spreadsheet as demonstrated in [figures 16.9-16.12] the following rules apply regarding the balance sheet changes between two periods:

- *If the Asset items increase between two periods, then the cash recorded in the cash flow statement as outflow (negative)*
- *If the Asset items decrease between two periods, then the cash recorded in the cash flow statement as inflow (positive)*
- *If the Liability items increase between two periods, then the cash recorded in the cash flow statement as inflow (positive)*
- *If the Liability items decrease between two periods, then the cash recorded in the cash flow statement as outflow (negative)*
- *If the Shareholder's items increase between two periods, then the cash recorded in the cash flow statement as inflow (positive)*
- *If the Shareholder's items decrease between two periods, then the cash recorded in the cash flow statement as outflow (negative)*

End boxed text here]

Forming the Cash Flow Statement

The Cash Flow Statement was built to reconcile income to cash. The first line of the statement is Net Income and the last line is free cash flow. The Balance Sheet statement is presented the same way except the first line on the Balance sheet is the cash balance and the last line being Retained Earnings. The changes of these balance sheet items represent free cash flow and net income, respectively.

Starting from Net Income we first need to add any non-cash items that are included in the income statement moving upwards. This includes depreciation, amortization, deferred taxes or even deferred interest representing the cash portion of net income before any timing differences in cost of goods sold and revenue.

As you can see in this example, we add Depreciation and deferred taxes to Net Income– both items can be found on the balance sheet as demonstrated in [figure 15.6]. After adding or subtracting these items we calculate Cash Income. Net Income could also be found on the balance sheet as the difference in Retained Earnings from one year to the next.

[INSERT FIGURE 15.6]

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

	Balance Sheet (000's)	Year 1	Year 2	$ Change	% Change
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14	**Property and Equipment**				
15	Land	2,500,000	2,500,000	-	0.0%
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17	Furniture & Equipment	50,000	75,000	25,000	50.0%
18	Total Gross P&E	3,000,000	3,125,000	125,000	4.2%
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24	Total Assets	3,035,000	3,184,800	149,800	4.9%
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28	**Current Liabilities**				
29	Accounts Payable	35,000	40,000	5,000	14.3%
30	Accrued Income Taxes	12,000	10,000	(2,000)	-16.7%
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41	**Owners' Equity**				
42	Common Stock	1,000,000	1,000,000	-	0.0%
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47	Total Liabilities & Owner's Equity	3,035,000	3,184,800	149,800	4.9%

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

Cash Flow Statement (000's)	Year 2
Net Income	148,800
Plus Depreciation	65,000
Plus Deffered Taxes	5,000
Cash Income	218,800

Figure 15.6

Figure 15.6

Once the cash flow statement is adjusted for any non-cash expense addbacks as described above the statement is broken down to three different activities representing different parts of the balance sheet as follows:

1. **Cash Flows from Operating Activities (figure 15.7)** or Working Capital represents changes in current assets and current liabilities on the balance sheet. Out of these sections of the balance sheet we omit cash balances and current portion long term debt as these are included in other sections of the activity sectors.

[INSERT FIGURE 15.7]

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

	Balance Sheet (000's)	Year 1	Year 2	$ Change	% Change
7	**Current Assets**				
8	Cash	45,000	65,800	20,800	46.2%
9	Accounts Receivable	45,000	60,000	**15,000**	33.3%
10	Inventories	35,000	40,000	**5,000**	14.3%
11	Prepaid Expenses	10,000	9,000	**(1,000)**	-10.0%
12	Total Current Assets	135,000	174,800	39,800	29.5%
14	**Property and Equipment**				
15	Land	2,500,000	2,500,000	-	0.0%
16	Building	450,000	550,000	100,000	22.2%
17	Furniture & Equipment	50,000	75,000	25,000	50.0%
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19	Less Accumulated Depreciaition	(300,000)	(365,000)	(65,000)	21.7%
20	Net P&E	2,700,000	2,760,000	60,000	2.2%
22	Long-Term Investments	200,000	250,000	50,000	25.0%
24	Total Assets	3,035,000	3,184,800	149,800	4.9%
26	**Liabilities and Owners Equity**				
28	**Current Liabilities**				
29	Accounts Payable	35,000	40,000	**5,000**	14.3%
30	Accrued Income Taxes	12,000	10,000	**(2,000)**	-16.7%
31	Accrued Expenses	10,000	8,000	**(2,000)**	-20.0%
32	Current Portion of Long Term Debt	20,000	10,000	(10,000)	-50.0%
33	Total Current Liabilities	77,000	68,000	(9,000)	-11.7%
35	Long-Term Debt:	1,200,000	1,180,000	(20,000)	-1.7%
37	Deferred Income Taxes	12,000	17,000	5,000	41.7%
39	Total Liabilties	1,289,000	1,265,000	(24,000)	-1.9%
41	**Owners' Equity**				
42	Common Stock	1,000,000	1,000,000	-	0.0%
43	Paid-in-Capital	-	25,000	25,000	
44	Retained Earnings	746,000	894,800	148,800	19.9%
45	Total Owners' Equity	1,746,000	1,919,800	173,800	10.0%
47	Total Liabilities & Owner's Equity	3,035,000	3,184,800	149,800	4.9%

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

Cash Flow Statement (000's)	Year 2
Net Income	148,800
Plus Depreciation	65,000
Plus Deffered Taxes	5,000
Cash Income	218,800
Working Capital Activities	
Change in Accounts Receivable	(15,000)
Change in Inventory	(5,000)
Change in Prepaid Expenses	1,000
Change in Accounts Payable	5,000
Change in Accrued Income Taxes	(2,000)
Change in Accrued Expenses	(2,000)
Total Change in Working Capital	(18,000)
Operating Cash Flow (OCF)	200,800

Figure 15.7

2. **Cash Flow from Investment Activities (figure 15.8)** are activities that represent the balance sheet changes between two periods in long term assets such as Property, Plant & Equipment, Long-term Investments and other assets. Goodwill and Intangibles are not included in this section. The changes in PP&E are called Capital Expenditures (Capex). If the company decides to sell assets a new line could be created called Asset Disposition or sometimes the Capex is net of asset sales.

[INSERT FIGURE 15.8]

lerity Technogy Inc. ("CTI")
ncial Statement Analysis

Balance Sheet (000's)	Year 1	Year 2	$ Change	% Change
Current Assets				
Cash	45,000	65,800	20,800	46.2%
Accounts Receivable	45,000	60,000	15,000	33.3%
Inventories	35,000	40,000	5,000	14.3%
Prepaid Expenses	10,000	9,000	(1,000)	-10.0%
Total Current Assets	135,000	174,800	39,800	29.5%
Property and Equipment				
Land	2,500,000	2,500,000	-	0.0%
Building	450,000	550,000	100,000	22.2%
Furniture & Equipment	50,000	75,000	25,000	50.0%
Total Gross P&E	3,000,000	3,125,000	**125,000**	4.2%
Less Accumulated Depreciaition	(300,000)	(365,000)	(65,000)	21.7%
Net P&E	2,700,000	2,760,000	60,000	2.2%
Long-Term Investments	200,000	250,000	**50,000**	25.0%
Total Assets	3,035,000	3,184,800	149,800	4.9%
Liabilities and Owners Equity				
Current Liabilities				
Accounts Payable	35,000	40,000	5,000	14.3%
Accrued Income Taxes	12,000	10,000	(2,000)	-16.7%
Accrued Expenses	10,000	8,000	(2,000)	-20.0%
Current Portion of Long Term Debt	20,000	10,000	(10,000)	-50.0%
Total Current Liabilities	77,000	68,000	(9,000)	-11.7%
Long-Term Debt:	1,200,000	1,180,000	(20,000)	-1.7%
Deferred Income Taxes	12,000	17,000	5,000	41.7%
Total Liabilties	1,289,000	1,265,000	(24,000)	-1.9%
Owners' Equity				
Common Stock	1,000,000	1,000,000	-	0.0%
Paid-in-Capital	-	25,000	25,000	
Retained Earnings	746,000	894,800	148,800	19.9%
Total Owners' Equity	1,746,000	1,919,800	173,800	10.0%
Total Liabilities & Owner's Equity	3,035,000	3,184,800	149,800	4.9%

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

Cash Flow Statement (000's)	Year 2
Net Income	148,800
Plus Depreciation	65,000
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Cash Income	218,800
Working Capital Activities	
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Change in Inventory	(5,000)
Change in Prepaid Expenses	1,000
Change in Accounts Payable	5,000
Change in Accrued Income Taxes	(2,000)
Change in Accrued Expenses	(2,000)
Total Change in Working Capital	(18,000)
Operating Cash Flow (OCF)	200,800
Investment Activities	
Capital Expenditures	(125,000)
Investments (Change)	(50,000)
Total Financing Activities	(175,000)
Cash Available Before Financing Activities	25,800

Figure 15.8

3. **Cash Flow from Financing Activities [figure 15.9]** are activities that represent the balance sheet changes between two periods in long-term liabilities and shareholder's equity (except for Retained earnings).

[INSERT FIGURE 15.9]

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

	Balance Sheet (000's)	Year 1	Year 2	$ Change	% Change
7	**Current Assets**				
8	Cash	45,000	65,800	20,800	46.2%
9	Accounts Receivable	45,000	60,000	15,000	33.3%
10	Inventories	35,000	40,000	5,000	14.3%
11	Prepaid Expenses	10,000	9,000	**(1,000)**	-10.0%
12	Total Current Assets	135,000	174,800	**39,800**	29.5%
14	**Property and Equipment**				
15	Land	2,500,000	2,500,000	-	0.0%
16	Building	450,000	550,000	**100,000**	22.2%
17	Furniture & Equipment	50,000	75,000	**25,000**	50.0%
18	Total Gross P&E	3,000,000	3,125,000	**125,000**	4.2%
19	Less Accumulated Depreciaition	(300,000)	(365,000)	**(65,000)**	21.7%
20	Net P&E	2,700,000	2,760,000	**60,000**	2.2%
22	Long-Term Investments	200,000	250,000	**50,000**	25.0%
24	Total Assets	3,035,000	3,184,800	**149,800**	4.9%
26	**Liabilities and Owners Equity**				
28	**Current Liabilities**				
29	Accounts Payable	35,000	40,000	**5,000**	14.3%
30	Accrued Income Taxes	12,000	10,000	(2,000)	-16.7%
31	Accrued Expenses	10,000	8,000	(2,000)	-20.0%
32	Current Portion of Long Term Debt	20,000	10,000	(10,000)	-50.0%
33	Total Current Liabilities	77,000	68,000	(9,000)	-11.7%
35	Long-Term Debt:	1,200,000	1,180,000	(20,000)	-1.7%
37	Deferred Income Taxes	12,000	17,000	5,000	41.7%
39	Total Liabilties	1,289,000	1,265,000	(24,000)	-1.9%
41	**Owners' Equity**				
42	Common Stock	1,000,000	1,000,000	-	0.0%
43	Paid-in-Capital	-	25,000	25,000	
44	Retained Earnings	746,000	894,800	148,800	19.9%
45	Total Owners' Equity	1,746,000	1,919,800	173,800	10.0%
47	Total Liabilities & Owner's Equity	3,035,000	3,184,800	149,800	4.9%

Celerity Technogy Inc. ("CTI")
Financial Statement Analysis

Cash Flow Statement (000's)	Year 2
Net Income	148,800
Plus Depreciation	65,000
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Cash Income	218,800
Working Capital Activities	
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Change in Inventory	(5,000)
Change in Prepaid Expenses	1,000
Change in Accounts Payable	5,000
Change in Accrued Income Taxes	(2,000)
Change in Accrued Expenses	(2,000)
Total Change in Working Capital	(18,000)
Operating Cash Flow (OCF)	200,800
Investment Activities	
Capital Expenditures	(125,000)
Investments (Change)	(50,000)
Total Financing Activities	(175,000)
Cash Available Before Financing Activities	25,800
Financing Activities	
ST Debt Payments	(10,000)
LT Debt Payments	(20,000)
Equity Contribution	25,000
Total Financing Activities	(5,000)
Free Cash Flow	20,800
Beginning Cash	45,000
Ending Cash	65,800

Figure 15.9

The book ***"The Four Cornerstones of Corporate Finance Value" written by Tim Koller, Richard Dobbs and Bill Huyett*** discuss the importance for the company create value (value creation). In one of the chapters of the book the authors elaborate how important it is for management to seek revenue growth and return on invested capital (ROIC) and compare this to the use of cash to achieve such growth. "Disaggregating cash flow into revenue growth and ROIC clarifies the underlying drivers of the company's performance" they stated. The book goes on to say that "this doesn't tell us much about its economic performance since an increase of cash flow come from many sources, including revenue growth or reduction in capital spending, or a reduction in marketing expenses. But if we told the company was growing at 7% per year and would earn ROIC of 15%, you could then evaluate its performance". Basically, management needs to invest more in Capex today, so it could achieve higher revenue growth in the future. This relationship between Capex and revenues is one that the analyst needs to address in the analysis.

FINANCIAL RATIO ANALYSIS

Understanding how to interpret financial statements does not purely involves looking at the trends between years such as revenue growth to determine how the company is performing. Though this approach is usually the first line of every financial analysis the analyst needs to get deeper in the analysis to determine specific results that should enhance the assessment of the company's performance. For example, by combining a few items from the income statement and the balance sheet or by comparing

cash flow statement and income statement lines, the analyst could better interpret the company's performance. This process is called ratio analysis and is designed to give the analyst a better story about the performance of the company. Ratio analysis is broken down into liquidity ratios, solvency ratios, operating ratios and profitability ratios (figure 15.10).

[INSERT FIGURE 15.10]

Celerity Technogy Inc. ("CTI")

Financial Statement Analysis

		Year 1	Year 2	Definition
7	**Trend Analysis Ratios**			
8	Revenue Growth		15.6%	This Year's Revenue / Last Year's Revenue - 1
9	Stock one-year Return (HPR)		25.0%	This Year's SP/ Last Year's SP -1
11	**Liquidity Ratios**			
12	Current Ratio	1.75x	2.57x	CA/CL
13	Quick ratio	1.17x	1.85x	(Cash + A/R) / CL
14	Cash ratio	0.58x	0.97x	Cash / CL
15	Accounts Receivable Turnover (ART)		21.14x	Revenue/Avg AR
16	Accounts Receivable Days		17.26	365 / ART
18	**Solvency Ratios**			
19	Debt/Equity Ratio	68.7%	61.5%	LTD / Equity
20	LTD / Total Capitalization	40.7%	38.1%	LTD / (LTD + Equity)
21	**EBITDA / Interest (Coverage Ratio)**	2.96x	3.61x	EBITDA / Interest
22	EBIT / Interest	2.50x	3.07x	EBIT / Interest
23	Fixed Charge Coverage Ratio		2.05x	(EBITDA-Capex)/(Int+ST+ LT Pmts)
24	Cash Avail.for Debt Service / Debt Svce		0.97x	(CABFA + int.) / (Int. + ST+LT Pmts)
25	**LTD / EBITDA (Leverage Ratio)**	3.12x	2.73x	LTD / EBITDA
27	**Activity Ratios / Operating Ratios**			
28	Inventory Ratio (IR)		11.20x	Cost of Revenues/Avg Inventory
29	Inventory Ratio - Days		32.59	365 / IR
30	Fixed Asset Turnover Ratio		0.407x	Rev / Avg of FA
31	Asset Turnover Ratio		0.36x	Rev / Avg of Total Assets
33	**Profitability Ratios**			
34	Gross Margin	64.1%	62.2%	Gross Margin / Revenues
35	EBITDA Margin	40.1%	39.0%	EBITDA / Revenue
36	EBIT Margin	33.9%	33.2%	EBIT / Revenue
37	Return on Assets (ROA)		4.8%	NI / Avg Assets
38	Gross Return on Assets		11.8%	EBIT / Avg Assets
39	Return on Equity (ROE)		8.1%	NI / Avg Equity
50	**Other Ratios**			
51	Altma's Z-score	2.15x	2.67x	
53	**Z Formula**			
54	Z = 1.2x(WC/TA) + 1.4x(RE/TA)+3.3x(EBIT/TA)+0.6x(MVE/Liabilities) + 0.99x(Sales/TA)			
56	WC = Working Capital			
57	TA=Total Assets			
58	RE=Retained Earnings			
59	MVE=Market Value of Equity			

61	**Z-Score**	**Bankruptcy**
62	1.8x or less	Likely
63	Between 1.8 - 3.0	Uncertain
64	3.0 or above	Not likely

Figure 15.10

Liquidity Ratios

Liquidity ratios measure how the company manages cash. This of course is more relevant when the company is in distress and having liquidity is its top priority. The following ratios are considered liquidity ratios (figure 15.11):

[INSERT FIGURE 15.11]

		Year 1	Year 2		Definition
5	**Liquidity Ratios**				
6	Current Ratio	1.75x	2.57x		CA/CL
7	Quick ratio	1.17x	1.85x		(Cash + A/R) / CL
8	Cash ratio	0.58x	0.97x		Cash / CL
9	Accounts Receivable Turnover (ART)		21.14x		Revenue/Avg AR
10	Accounts Receivable Days		17.26	Days	365 / ART

Figure 15.11

Current Ratio: Current Assets / Current Liabilities. This ratio measures the ability of the company to pay off its short-term obligations such as payment to vendors or accrued taxes by liquidating its current assets – basically, using the cash balances and proceeds from turning receivable and inventory into cash. Companies with lower than 1.0x current ratio, by definition, do not have enough liquidity to cover their short-term obligations. The example above shows that the current ratio improves from 1.75x in 2016 to 2.57x in 2017 showing that even if the company's liquidity is cut in half they have enough cash left to cover its short-term obligations. This indicates the ability to avoid insolvency for the near future.

Quick Ratio: (Cash & Cash Equivalents + Accounts Receivable)/ Current Liabilities. This ratio, also known as acid test ratio, has the same denominator as the current ratio but better represents the immediate liquidity of the company. Sometimes, converting inventory to cash is more challenging. In distress companies that liquidity is the most important assessment of insolvency, inventory is usually sold at a discount to what is reported in the books. In this case the current ratio could be overestimating the company's liquidity position.

Accounts Receivable Turnover (ART) and Days: ART = Revenue / Average Receivables and ART/365 Days. This ratio is called a mixed ratio as it combines items from the income statement and balance sheet. In most cases when an analyst combines items from the income statement and balance sheet, they would need to use the an average approach for the balance sheet. Due to the the application of periodic information to "snap shot" information. ART takes the Revenue divided by the average receivable amounts between periods found on the balance sheet. This ratio represents how many times a year the receivables convert to cash revenue. Taking that result further someone can calculate how often the receivables are paid. In the example above (figure 11) the company shows that the receivables turned 21 times per year or every 17.3 days.

Solvency Ratios

Solvency ratios measure how a company manages debt. Debt can be a friend or a foe. Using the right amount of debt to grow your business is considered good and effective management. Debt though, a lot of it, can put a lot of pressure on the company's performance. Solvency ratios include, Debt to Equity, **Capitalization Ratio** or Long-Term Debt to Total Capitalization, **Coverage ratio** or EBITDA to interest Expenses, EBIT to interest Expenses, Fixed Charge Coverage, Cash Flow Available for Debt Service to Debt Service and **Leverage Ratio** of Long-Term Debt to EBITDA. All these are important ratios that gives the analyst a clear understanding of the company's solvency status (figure 15.12).

[INSERT FIGURE 15.12]

		Year 1	Year 2	Definition
5	**Solvency Ratios**			
6	Debt/Equity Ratio	68.7%	61.5%	LTD / Equity
7	LTD / Total Capitalization	40.7%	38.1%	LTD / (LTD + Equity)
8	**EBITDA / Interest (Coverage Ratio)**	2.96x	3.61x	EBITDA / Interest
9	EBIT / Interest	2.50x	3.07x	EBIT / Interest
10	Fixed Charge Coverage Ratio		2.05x	(EBITDA-Capex)/(Int+ST+ LT Pmts)
11	Cash Avail.for Debt Service / Debt Svce		0.97x	(CABFA + int.) / (Int. + ST+LT Pmts)
12	**LTD / EBITDA (Leverage Ratio)**	3.12x	2.73x	LTD / EBITDA

Figure 15.12

Debt to Equity: Debt / Equity. This ratio is generally used for comparing the strength of the equity as it compares to its debt. Basically, for investment grade companies (BBB+ and better under Standards & Poor grading system) have Debt to Equity ratio of less than 1.0x showing that the composition of book value of equity is higher than the value of debt. Companies with higher than 1.0x are considered riskier as the debt is higher than the equity.

Total Capitalization: Total Debt / (Total Debt + Shareholder's Equity) or Long-Term Debt / (Long-Term Debt + Shareholders Equity): This ratio measures the proportion of debt in the company's capital structure. This ratio is very common ratio to measure balance sheet leverage, an important measurement for a company to effectively access the capital markets.

Coverage Ratios: EBITDA / Interest Expense and EBIT / Interest: Both ratios could be found in many loan agreements as financial covenant. This covenant measures how much cushion does a company has to be able to make its periodical debt obligations such as Interest expenses. Other coverage ratios are **Fixed Charge Coverage, Cash Flow Available for Debt Service to Debt Service**. These ratios are more specific to the ability of the company to make its debt obligations – both principal and interest payments.

Leverage Ratio: Total Debt / EBITDA or Long-Term Debt / EBITDA: This one of the most popular solvency ratios. This ratio is typically included as a covenant in many loan agreements primarily for companies that are non-investment grade (BB- or below rated by Standard & Poors). It's also a market benchmark for raising debt in the loan and bond markets. Even the government, after the financial crisis, implemented guidelines to discourage regulated banks to lend money to companies that the ratio is higher than 6.0x. In 2013, the Fed published the Leveraged Lending Guidelines to guide banks to run debt capacity measurements before providing credit. This ratio measures how long will take the company to pay off its debt. In a later chapter regarding debt capacity, this ratio is one of the ratios that we will use to derive debt capacity at certain transactions.

Altman's Z-Score:

Altman's Z-score measures the credit strength of a publicly traded manufacturing company that faces bankruptcy. The five combined ratios as illustrated below are measuring the strength of the company's cash collateral and the likelihood of bankruptcy. Four out of the five ratios have Total Assets as the denominator putting emphasis on the relationship between income and cash flow to the collateral of the company. A special relevant factor when a company is facing bankruptcy. These ratios include Working Capital / Total Assets, Retained Earnings / Total Assets, EBIT / Total Assets and Sales / Total Assets. The other ratio, Market Value of Equity / Total Liabilities, measures the company's market value of the equity in relationship to the total liabilities. In most

distress situations where the company is facing bankruptcy, the stock price will significantly decline and simultaneously the liability increases. As a result, the company finances it loses by accessing its credit facilities (figure 15.13).

[INSERT FIGURE 15.13]

		Year 1	Year 2
5	**Other Solvency Ratios**		
6	Altma's Z-score	2.15x	2.67x
8	**Z Formula**		
9	Z = 1.2x(WC/TA) + 1.4x(RE/TA)+3.3x(EBIT/TA)+0.6x(MVE/Liabilities) + 0.99x(Sales/TA)		
11	WC = Working Capital		
12	TA=Total Assets		
13	RE=Retained Earnings		
14	MVE=Market Value of Equity		

	Z-Score	Bankruptcy
16		
17	1.8x or less	Likely
18	Between 1.8 - 3.0	Uncertain
19	3.0 or above	Not likely

Figure 15.13

Each ratio that makes the combined 5-ratio formula called Z-Score have different weights assigned to them to calculate the credit strength of the company. If the Company's Z-score is less than 1.8x the likelihood of bankruptcy is high. Between 1.8x and 3.0x results in uncertainty, in this case what is most important is the negative or positive trend towards or away from bankruptcy. The likelihood of bankruptcy is remote if the z-score is calculated at 3.0x or above indicating that the numerator number of each ratio has a relationship to with collateral that is healthy.

Activity or Operating Ratios

These ratios measure how well and efficiently the company manages the overall business operations including inventory, working capital, revenue and cost. For example, the hotel sector uses occupancy ratio (OR) which represents the percentage amount of rooms booked divided by the total available rooms. It is a perfect example to measure how active the hotel is with less vacancies. The restaurant sector uses Turnover Ratio which represents how often tables are turned over or reused during a lunch shift. For a manufacturing company, **Inventory turnover** measures how well the company manages inventory (figure 15.14).

[INSERT FIGURE 15.14]

		Year 1	Year 2	Definition
5	**Activity Ratios / Operating Ratios**			
6	Inventory Ratio (IR)		11.20x	Cost of Revenues/Avg Inventory
7	Inventory Ratio - Days		32.59	365 / IR
8	Fixed Asset Turnover Ratio		0.407x	Rev / Avg of FA
9	Asset Turnover Ratio		0.36x	Rev / Avg of Total Assets

Figure 15.14

Inventory Turnover: Cost of Revenues / Average Inventory: This is a ratio that measures how effectively inventory is managed compared to cost of goods that are sold. The result shows how many times a year your inventory is turned. The example above shows 11.2x -basically the inventory as it moves from raw material to work-in-process, to being at finished good stored in the warehouse, and eventually sold is done approximately 11 times per year.

Inventory Days: Inventory Turnover /365 days: Using the example above, the inventory is turned every 32.6 days – basically the inventory as it moves from raw material to work-in-process, then to finished good stored in the warehouse, and eventually sold – is done every 32.6 days before new inventory goes though the cycle.

Fixed Asset Turnover Ratio and Total Asset Turnover: Revenue / Average Fixed Assets or Revenue / Total Assets: Both ratios measure how well the business is using its long-term assets, primarily plant and equipment to generate revenue. A declining ratio would show that the business is over invested in plant and equipment or other assets to yield the revenues. This is a good ratio to demonstrate how the company is trending from year to year and how it compares versus its peers that manufacture the same products.

Profitability Ratios

These ratios measure how profitable the companies are. These ratios are very popular for pier comparison and trend analysis. These ratios include gross margin ratios expressed in percentage, EBITDA or EBIT margin ratios, Return of Assets and Return of Equity (figure 15.15).

[INSERT FIGURE 15.15]

		Year 1	Year 2	Definition
5	**Profitability Ratios**			
6	Gross Margin	64.1%	62.2%	Gross Margin / Revenues
7	EBITDA Margin	40.1%	39.0%	EBITDA / Revenue
8	EBIT Margin	33.9%	33.2%	EBIT / Revenue
9	Return on Assets (ROA)		4.8%	NI / Avg Assets
10	Gross Return on Assets		11.8%	EBIT / Avg Assets
11	Return on Equity (ROE)		8.1%	NI / Avg Equity

Figure 15.15

Gross Margin: Gross Profit / Revenues: This is one of the most common profitability ratios. This

ratio, usually expressed as a percentage, measures what the direct profit of a unit of sale. In figure 15 above, a gross margin of 62.2% (2017) is stating that every $1 of unit sale yields 62.2 cents of gross profit.

EBITDA Margin and EBIT Margin: EBITDA / Revenues and EBIT / Revenues: These ratios measure the percentage profit after operating expense for every single unit of sale. EBITDA represents profit before depreciation and amortization reflecting as close to cash profit as possible.

Return on Assets (ROA) and Gross Return on Assets: Net Income / Average Total Assets and EBIT / Total Assets: This ratio represents the % of income that the company generates from the all the assets they own. Based on figure 15 above the ROA is 4.8% which basically means that if the company decides to sell its assets at book value of an average $3 billion and deposit at a bank would they do better than 4.8% return.

Return on Equity (ROE): Net Income / Average Total Shareholder's Equity: This ratio takes the ROA one step further. Since the value of the Assets are offset by liabilities, the net difference which is owner's equity represent the book value of the investment in the company. ROE measures the return on the shareholders equity or how much net income does the company generate for every $1 of investment value.

CASE STUDY AND PRACTICE CASES

1. Based on the information below, complete the spreadsheet that includes a brief cash flow statement, balance sheet and ratios. (access spreadsheet www.professordrou.com)

[INSERT PROBLEM 15.1a]

[INSERT PROBLEM 15.1b]

2. Complete the Cash Flow Statement 2017 based on the two year balance sheet and income statements provided below (access the spreadsheet at www.professordou.com).

[INSERT PROBLEM 15.2a]

[INSERT PROBLEM 15.2b]

[INSERT PROBLEM 15.2c]

3. Download the financial statements for any public traded company from websites such as www.finance.yahoo.com and www.google.com/finance and calculate the following ratios (to access spreadsheet www.professordrou.com).

[INSERT PROBLEM 15.3]

References (Chapter 15)

- Boddie, Kane and Marcus – "Essentials of Investments", 10th edition, McGraw Hill Education
- Knopman Financial Training, "Limited Representative – Investment Banking Exam – Series 79".
- Tim Koller, Richard Dobbs, Bill Huyett, "The Four Cornerstones of Corporate Finance – Value", McKinsey & Company publishing.