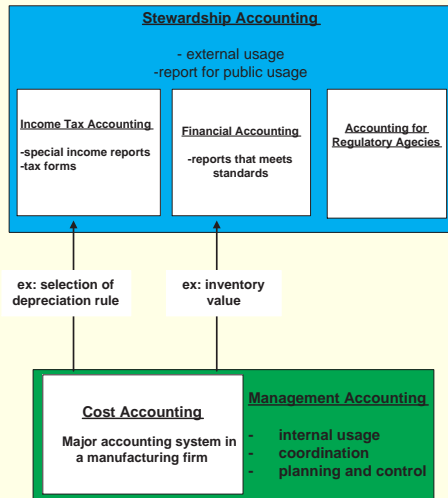


Accounting Function



The main focus in the first part of the course is on the external usage of the financial analysis:

- 1 Creditors
- 2 Investors

Creditors

- give loans in the form of notes, or bonds, on which they receive interest
- expect a loan to be repaid according to its terms, both the capital and the interest
- faces the risk of not receiving the loan back from the debtor

Investors

- buy stocks, from which they hope to receive dividends and an increase in market value
- face the risk that dividends will be reduced or not paid at all and the shares will lose value

For both parties, the goal is achieving a sufficient return in return for the risk taken. **The greater the risk involved, the greater the return required.**

- Any loan or investment can turn out badly
- Therefore, the investors and creditors put their funds into a **portfolio** (group of loans or investments)
- The portfolio allows them to reduce the financial risk involved associated with the investments
- This process is known as **Hedging**

Forming a Portfolio

- Decision of which stocks or loans will be used must be given
- Financial statement analysis is most useful to make these decisions

Creditors and investors use the financial statement analysis for:

- 1 To judge past performance and current position
- 2 To judge future potential and risk connected with the potential.

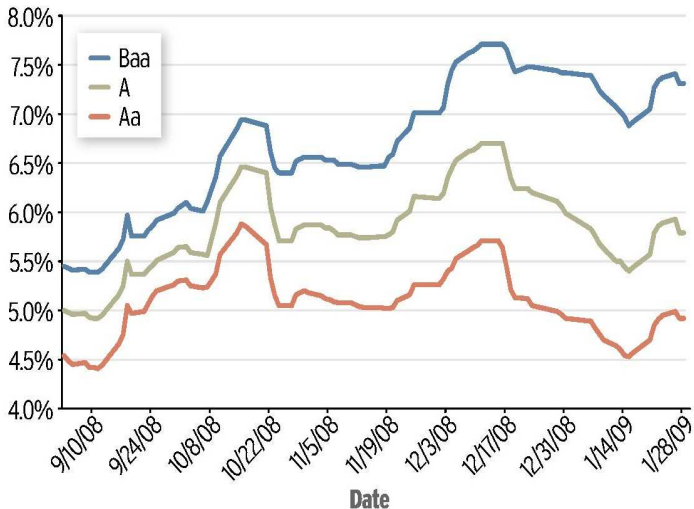
Assessment of Past Performance and Current Position

- Past performance is often a good indicator of future performance
- Therefore, we look at the trend of past sales, expenses and net income
- Analysis of current position will tell
 - what assets the company have
 - what liabilities must be paid
 - what the cash position is
 - how reasonable the inventories and receivables are

Assessment of Future Performance and Related Risk

- Investors: Potential earning ability will affect the values of the market price of the company's stock
- Creditors: Potential debt-paying ability will affect the probability of receiving the debt back
- The potentials of some companies are easier to predict so the associated risk is less
- The riskiness of the investment or loan depends on how easy it is to predict future profitability or liquidity
- For taking the greater risk, investors/creditors demand a higher expected return.
 - higher interest rate charged to debtor
 - higher increase in dividends & market value expected from invested company

Bond interest rates: 20th year maturity



In financial statement analysis, decision makers must judge whether the relations they have found are favorable or unfavorable. Three standards of comparison often used are:

- 1 Rule-of thumb measurements
- 2 Past performance
- 3 Industry norms

Rule-of-Thumb Measures

- Ad-hoc rules
- Example: the current ratio = $\frac{\text{current assets}}{\text{current loans}}$ of 2 : 1 is acceptable.
- Rule-of-thumb measurements must be used with great care

Past Performance of the Company

- Comparison of financial measures or ratios of the same company over a period of time.
- Give the analyst some basis for judging whether the measure or ratio is getting better or worse
- It also shows the trend
- However, it must be noted that the trends do reverse at times
- Past performance may not be enough to meet the present needs

Industry Norms

- will tell how the company being analyzed compares with other companies in the same industry
- Suppose the industry have an average rate of return on total investment of 8 percent
- 3 and 4 percents are not adequate
- Industry norms can also help judging the trends.
- Suppose because of a recession (downward turn in economy), companies profit margin dropped from 12 percent to 10 percent.
- if industry had an average drop in profit margin from 12 to 4 percent, the company being analyzed did relatively well.

There are four main techniques used in the financial analysis.

Horizontal Analysis

- GAAP call for presenting **comparative** financial statements that give the current year's and past year's financial information
- Common starting point in studying such statements is horizontal analysis:
 - 1 computation of dollar amount of changes
 - 2 percentage changes from previous year to the current year
- The percentage change is computed as:

$$\text{Percentage change} = 100 \times \frac{\text{amount of change}}{\text{previous year amount}}$$

- The base year in any set of data is always the first year being studied

<i>Eastman Kodak Company-Consolidated Balance Sheet</i>				
<i>December 31, 1990 and 1989</i>				
	(in millions)		Increase (Decrease)	
	1990	1989	Amount	Percentage
Assets				
Current Assets				
Cash and its equivalents	\$735	\$1,095	\$(360)	(32.9)
Marketable Securities	181	184	(3)	(1.6)
Receivables	4,333	4,245	88	2.1
Inventories	2,425	2,507	(82)	(3.3)
Deferred Income tax charges	653	306	347	113.4
Prepaid Charges	281	254	27	10.6
	<hr/>	<hr/>	<hr/>	<hr/>
Total Current Assets	\$8,608	\$8,591	\$17	.2
Properties				
Land, buildings, machinery, Equipment	\$17,648	\$16,774	\$874	5.2
Less accumulated depreciation	8,670	8,146	524	6.4
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Net Properties	\$8,978	\$8,628	\$350	4.1
Other Assets				
Unamortized goodwill	4,448	4,579	(131)	(2.9)
Other non-current assets	2,091	1,854	237	12.8
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Total Assets	\$24,125	\$23,652	\$473	2.0

$$\text{Percentage change in total assets} = 100 \times \frac{\$473}{\$23,652} = 2.0\%$$

<i>Eastman Kodak Company-Consolidated Balance Sheet</i>				
<i>December 31, 1990 and 1989</i>				
	(in millions)		Increase (Decrease)	
	1990	1989	Amount	Percentage
Liabilities and Shareowner's Equity				
Current Liabilities				
Payables	\$6,413	\$6,073	\$340	5.6
Taxes-income and other	588	338	250	74.0
Dividends Payable	162	162	0	.0
	<hr/>	<hr/>	<hr/>	<hr/>
Total Current Liabilities	\$7,163	\$6,573	\$590	9.0
Other Liabilities and Deferred Credits				
Long-term borrowing	6,989	7,376	(387)	(5.2)
Other long-term liabilities	1,406	1,371	35	2.6
Deferred income tax credits	1,830	1,690	140	8.3
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Total Liabilities	\$17,388	\$17,010	\$378	2.2
Shareholders' equity				
Common Stock (\$2.5 per share)	941	940	1	.1
Retained Earnings	7,855	7,761	94	1.2
Less treasury stock	2,059	2,059	0	0
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Total Shareholder's Equity	\$6,737	6,642	95	1.4
	<hr/>	<hr/>	<hr/>	<hr/>
Total liabilities and Shareholder's Equity	\$24,125	\$23,652	473	2.0

There was a change in the composition of the liabilities. Current liabilities increased by 9.0 percent while long-term borrowings decreased by 5.2 percent.

<i>Eastman Kodak Company</i>				
Consolidated Income Statement				
<i>December 31, 1990 and 1989</i>				
	1990	1989		
Sales in USA	\$10,118	\$10,302	\$(184)	(1.8)
Sales outside USA	8,790	8,096	694	8.6
Total Sales	18,908	\$18,398	510	2.8
Cost of Goods Sold	\$10,966	\$11,075	\$(109)	(1.0)
Sales&Administrative Expenses	5,098	4,857	241	5.0
Restructuring Cost	—	875	(875)	(100)
Total Cost and Expenses	\$16,064	\$16,807	(743)	(4.4)
Earnings from Operations	\$2,844	\$1,591	\$1,253	78.8
Investment Income	167	148	19	12.8
Interest Expense	(812)	(895)	(83)	(9.3)
Litigation Judgement	(888)	—	(888)	—
Other Income (charges)	(54)	81	(135)	(166.7)
Earnings before Income Tax	\$1,257	\$925	\$332	35.9
Provision for Income Tax	554	396	158	39.9
Net Earnings	\$703	\$529	\$174	32.9
Outstanding Number of Common Shares	324.5	324.2	0.2	0.1
Net Earnings per Share	\$2.17	\$1.63	\$0.53	33.1

Trend Analysis

- A variation of horizontal analysis
- Percentage changes are calculated for several successive years instead of two years
- It may point out basic changes in the nature of the business
- Trend analysis uses an **index number** to show changes in related items over a period of time
- For index numbers, one year, base year, is equal to 100 percent. Other years are measured in relation to that amount
- $$\text{index} = 100 \times \frac{\text{Index year amount}}{\text{base year amount}}$$

<i>Eastman Kodak Company</i>					
<i>Summary of Operations - Selected Data</i>					
<i>December 31, 1990 and 1989</i>					
	1990	1989	1988	1987	1986
Sales	\$18,908	\$18,398	\$17,034	\$13,305	\$11,550
Earnings from Operations Per Common Share	2,844	1,591	2,812	2,078	724
Net Earnings	2.17	1.63	4.31	3.52	1.1
Dividends	2.00	2.00	1.90	1.71	1.63
Trend Analysis (in percentage)					
Sales	163.7				100.0

$$\text{index} = 100 \times \frac{\text{Index year amount}}{\text{base year amount}} = 100 \times \frac{\$18,908}{\$11,550} = 163.7$$

<i>Eastman Kodak Company</i>					
<i>Summary of Operations - Selected Data</i>					
<i>December 31, 1990 and 1989</i>					
	1990	1989	1988	1987	1986
Sales	\$18,908	\$18,398	\$17,034	\$13,305	\$11,550
Earnings from Operations Per Common Share	2,844	1,591	2,812	2,078	724
Net Earnings	2.17	1.63	4.31	3.52	1.1
Dividends	2.00	2.00	1.90	1.71	1.63
Trend Analysis (in percentage)					
Sales	163.7	159.3	147.5	115.2	100.0
Earnings from Operations Per Common Share	392.8	219.8	388.4	287.0	100.0
Net Earnings	197.3	148.2	391.8	320.0	100.0
Dividends	122.7	122.7	116.6	104.9	100.0

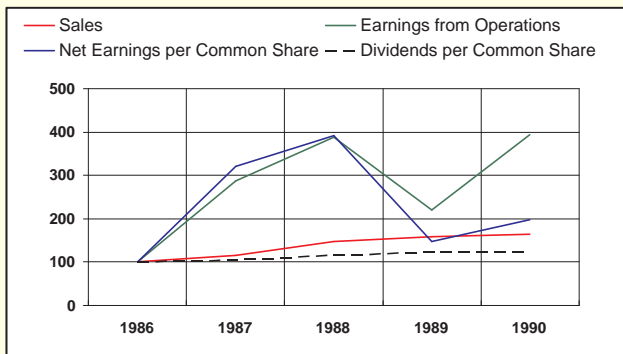


Figure: Trend Analysis for Eastman Kodak Company

The trend analysis shows that earnings from operations has been more **volatile** than sales and that net earnings per common share has been more **volatile** than dividends per share

Vertical Analysis

- percentages are used to show the relationship of the different parts to the total
- set a total figure in the statement equal to 100 percent and computes the percentage of the total of each component of that figure. This figure can be
 - Total assets, total liabilities and stockholder's equity on balance sheet
 - Revenues or sales on income statement
- The resulting statement of percentages is called a **common-size statement**.
- useful for comparing the importance of certain components in the operation of the business

<i>Eastman Kodak Company</i>		
<i>Common-Size Balance Sheet</i>		
<i>December 31, 1990 and 1989</i>		
	1990	1989
Assets		
Current Assets	35.7%	36.3%
Properties (Less Accumulated Depreciation)	37.2	36.5
Other Assets	27.1	27.2
Total Assets	100%	100%
Liabilities		
Current Liabilities	29.7%	27.8%
Long-Term Liabilities	34.8	37.0
Deferred income tax credits	7.6	7.1
Total liabilities and Deferred Credits	72.1%	71.9%
Shareholders' equity		
Common Stock	3.9%	4.0%
Retained Earnings	32.6	32.8
Treasury stock	(8.5)	(8.7)
Total Shareholder's Equity	27.9%	28.1%
Total liabilities and Shareholder's Equity	100.0%	100.0%

Again, the change in the composition of liabilities can be seen in this analysis. Current liabilities increased from 27.8 percent to 29.7 percent. Correspondingly, long-term liabilities decreased from 37 percent to 34.8 percent.

<i>Eastman Kodak Company</i>		
Common-Size Income Statement		
<i>December 31, 1990 and 1989</i>		
	1990	1989
Sales	100.0%	100.0%
Costs and Expenses	58.0%	60.2%
Selling and Administrative Expenses	27.0	26.4
Restructuring Costs	—	4.8
	-----	-----
Total Costs and Expenses	85.0%	91.4%
	-----	-----
Earnings from Operations	15.0%	8.6%
Other Income and (Expenses)	(8.4)	(3.6)
	-----	-----
Earnings before Income Tax	6.6%	5.0%
Provision for Income Taxes	2.9	2.2
	-----	-----
Net Earnings	3.7%	2.9%

Common size statements often used to make comparison between companies of different size in the same industry.

Ratio Analysis

- Ratios are guides or short cuts that are useful in evaluating the financial position
- Useful in comparing them to results in previous years or to other companies
- points out areas needing further investigation
- Ratios may be expressed in several ways, ex. net income of \$100,000 to sales of \$1,000,000 may be stated as:
 - 1 net income is 1/10 or ten percent of sales
 - 2 the ratio of sales to net income is 10 to 1 (10:1) or ten times net income
 - 3 for every dollar of sales, the company has an average net income of 10 cents.

The ratio analysis is applied for four main objectives: The evaluation of

- 1 Liquidity
- 2 Profitability
- 3 Long-term solvency
- 4 Market Strength

Evaluating Liquidity

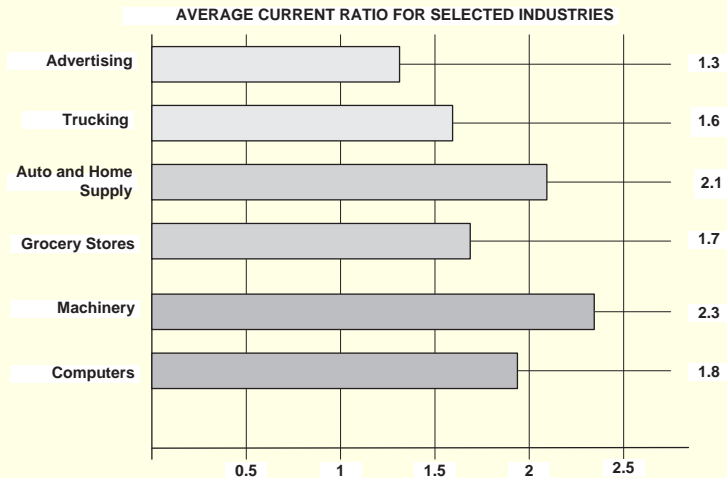
Liquidity is ability to pay bills when they are due and to meet unexpected needs for cash. Common ratios related with evaluating liquidity are:

- 1 Current Ratio
- 2 Quick Ratio
- 3 Receivable Turnover
- 4 Inventory Turnover

Current Ratio

Widely used for liquidity and short-term debt-paying ability.

Current Ratio	1990	1989
$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{\$8,608}{\$7,163} = 1.2$	$\frac{\$8,591}{\$6,573} = 1.31$



Source: *Industry Norms and Key Business Ratios, 2004-2005*

Evaluating Liquidity

Quick Ratio

Measures the relationship of the more liquid current assets to current liabilities.

Quick Ratio	1990	1989
$\frac{\text{Cash} + \text{Receivables} + \text{Marketable Securities}}{\text{Current Liabilities}}$	$\frac{735 + 181 + 4,333}{\$7,163}$	$\frac{1,095 + 184 + 4,245}{\$6,573}$
	$= 0.73$	$= 0.84$

Receivable Turnover

The ability to collect receivables in a timely manner affects liquidity. It shows how many times, on average, the receivables were turned into cash. (Assume \$4,071 of account receivables in 1988.)

Receivable Turnover	1990	1989
$\frac{\text{Net Sales}}{\text{Average accounts receivable}}$	$\frac{\$18,908}{(\$4,333 + \$4,245)/2}$	$\frac{\$18,398}{(\$4,245 + \$4,071)/2}$
	$= 4.41 \text{ times}$	$= 4.42 \text{ times}$

Evaluating Liquidity

Inventory Turnover

Inventory turnover ratio measures relative size of inventory. Smaller, fast-moving inventory means that company has less cash tied up in inventory. Using a 1988 ending balance of \$3,025 million for inventory:

Inventory Turnover	1990	1989
$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	$\frac{\$10,966}{(\$2,425 + \$2,507)/2}$	$\frac{\$11,075}{(\$2,507 + \$3,025)/2}$
	=4.45 times	=4.00 times

Higher Liquidity ratios are desirable, since it shows high capability in paying bills and debts.

Evaluating Profitability

A company's long term survival depends on its ability to earn a satisfactory income. Investors become or remain stockholders for one reason: believing that dividends and capital gains they will receive will be greater than the returns on other investments of about **the same risk**.

Profit Margin

Measures the percentage of each revenue dollar that contributes to net income.

Profit Margin	1990	1989
$\frac{\text{Net Income}}{\text{Net Sales}}$	$\frac{\$703}{\$18,908}$	$\frac{\$529}{\$18,398}$
	=3.7%	=2.9%

Evaluating Profitability

Asset Turnover

Measure of how efficiently assets are used to produce sales.

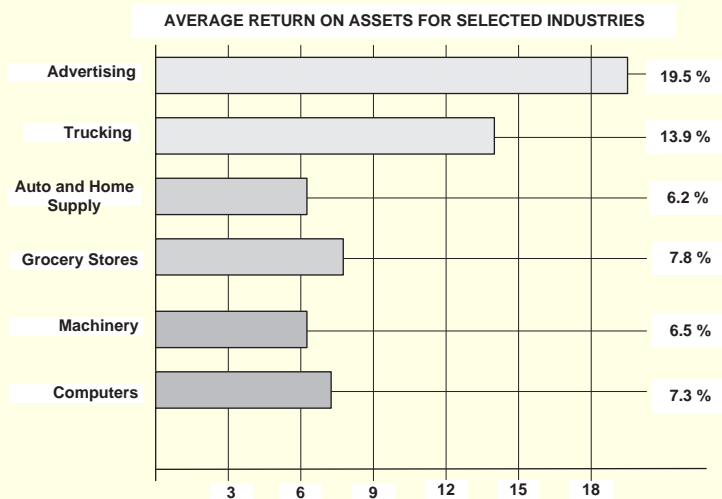
Asset Turnover	1990
$\frac{\text{Net Sales}}{\text{Average Total Assets}}$	$\frac{\$18,908}{(\$24,125 + \$23,625)/2}$
	= .79 times

How many times in the period assets were “turned over” in sales

Return on Assets

Measures amount earned on each dollar invested.

Return on Assets	1990
$\frac{\text{Net Income}}{\text{Average Total Assets}}$	$\frac{\$703}{(\$24,125 + \$23,625)/2}$
	= 2.9%



Source: *Industry Norms and Key Business Ratios, 2004-2005*

Evaluating Profitability

Return on Equity

Measures how much was earned for each dollar invested by the owners.

Return on Equity	1990
$\frac{\text{Net Income}}{\text{Average Owner's Equity}}$	$\frac{\$703}{(\$6,737 + \$6,642) / 2}$
	=10,5%

Evaluating Long-Term Solvency

Long-term solvency deals with company's ability to survive over many years. The aim in long-term solvency is to point out early if a company is on the road to bankruptcy.

Debt to Equity Ratio

Shows the amount of company's assets provided by creditors in relation to the amount provided by stockholders.

Debt to Equity Ratio	1990	1989
$\frac{\text{Total Liabilities}}{\text{Owner's Equity}}$	$\frac{\$17,388}{6,737}$	$\frac{\$17,010}{6,642}$
	=2.58	=2.56

- The company that has interest-bearing debt is said to be **leveraged**.
- This ratio shows the extend to which the company is leveraged.

Evaluating Long-Term Solvency

- Leverage is risky compared to selling stocks:
 - Company has legal obligation to make interest payments on time and to pay the principal at maturity date no matter what the level of company's earnings is
 - But dividends are made only when board of directors decided to
- But interest is tax deductible, dividends are not

Interest Coverage Ratio

If a company is able to earn a return on assets greater than the cost of the interest, it makes an overall profit.

Interest Coverage Ratio	1990	1989
$\frac{\text{Net Income Before taxes} + \text{Interest Expense}}{\text{Interest Expense}}$	$\frac{\$1,257 + 812}{812}$	$\frac{\$925 + 895}{895}$
	=2.55	=2.03

Evaluating Market Strength

Market Test Ratio

- Market price of company's stock shows what investors think of a company
- Market price is the price which investors are willing to buy and sell stock
- Shows the potential risk and return by owning the share
- But market price must be related to other properties of company

Price/Earning (P/E) Ratio

Measures the relation of the current market price to the company's earnings per share. Assuming a \$40 market price in 1990 for Eastman Kodak Company.

$$\begin{array}{r}
 \text{Price/Earning Ratio} \quad \text{1990} \\
 \hline
 \frac{\text{Market Price per Share}}{\text{Earnings per Share}} \quad \frac{\$40}{\$2.17} \\
 = 18.4 \text{ times}
 \end{array}$$

Evaluating Market Strength

Dividend Yield

Measures the current return to an investor from a stock.

Dividend Yield	1990
<u>Dividends per Share</u>	\$2
<u>Market Price per Share</u>	\$40
	=5.0 %

In 1990, investor gets a 5 percent return from dividends. Also investors receives (losses) a return from the increase (decrease) in market value. This must be added to (subtracted from) dividend yield to find the total return from the owned stock.

Higher market test ratios are desirable since they indicate that the investing community views the company's potential favorable.