# Planning and Control 2
# Financial Statement Analysis

1

Lecture

## Course overview and introduction to financial statement analysis

# Course presentation

**Length: 40 hours class course**

**Credits: 5**

**Class**

- **Monday 9:15-11:00 a.m. (room C228)**
- **Tuesday 14:15 – 16:00 p.m. (room C228)**

**Lecturers:**

- **Davide Moro (dmoro@liuc.it)**
- **Carlo Salvato (csalvato@liuc.it)**

**Textbook:**

- **Wild, Subramanyam, Halsey, *Financial Statement Analysis* – (eighth edition), McGraw-Hill, 2003 – International Edition**

# Course presentation

## "Rules of the game"

- **Attendance: highly recommended**
- **Attention and participation: each student is kindly requested to not disturb during the lecture and to participate actively (ask if something is not clear!)**
- **Textbook: its use is fundamental for class exercises and home study (each student is asked to have a copy!!).**
  ***Available at LIUC's bookshop.***
- **Overheads: provided by the teachers on the course web site (course material)**
  **A paper copy for the class will be available as well as a copy at the international student office.**
- **Examination: written examination structured as following:**
  - **open questions about main topics of the course**
  - **exercises: application of tools and techniques for financial statement analysis**

# Course presentation

## "Rules of the game": examination

**Two options are provided:**

1. **Written examination divided into two parts (highly recommended for Erasmus students as well as LIUC students!!)**
   a. **Intermediate examination: written examination on topics presented within the first 8 lectures of the course**
   b. **Final examination:**
      - **written examination held on a special session (week from 31st of May to 4th of June)**
      - **only on the remaining topics;**
      - **Open only to those students that have passed (18/30) the intermediate examination**
2. **Final comprehensive examination: written examination on the whole course program, scheduled according to the regular summer examination sessions**

# Course presentation

## “Rules of the game”: examination

**Final evaluation:**

1. **Examination divided into two parts:** average between the marks obtained in the intermediate and in the final examination.

2. **Final comprehensive examination: the exam is passed with a mark equal or higher than 18/30.**

# Course Structure

## Financial Statement Analysis

### Part I
### Introduction and Overview

Lecture 1: Overview of Financial Statement Analysis (Chapter 1)

Lecture 2: Financial Reporting and Analysis (Chapter 2)

### Part II
### Accounting Analysis

Week 2: Analyzing Financing Activities (Chapter 3)

Week 3: Analyzing Investing Activities (Chapter 4)

Week 4: Analyzing Operating Activities (Chapter 6)

### Part III
### Financial Analysis

Week 5: Cash Flow Analysis (Chapter 7)
Week 6: Return on Invested Capital (Chapter 8)
Week 7: Profitability Analysis (Chapter 9)
Week 8:Liquidity and working capital analysis
Week 9: Capital Structure and Solvency
Week 10: Comprehensive Case

# Lecture 1 agenda

## Overview of Financial Statement Analysis

### Business Analysis

- Introduction to Business analysis
- Types of business Analysis
- Components of Business Analysis

### Financial Statements Basis of analysis

- Business activities
- Financial statements and business activities
- Additional information

### Financial Statements Analysis Preview

- Analysis tools
- Valuation models
- Analysis in an efficient market

# Business Analysis

**Evaluation of a company's prospects and risks for the purpose of making business decisions**

**Evaluate Prospects**

**Evaluate Risks**

**Business Decision Makers**

- Equity investors
- Creditors
- Managers
- Merger and Acquisition Analysts
- External Auditors
- Directors
- Regulators
- Employees & Unions
- Lawyers

# Financial Statement Analysis

- **It is part of business analysis**
- **It is the application of analytical tools and techniques to general –purpose financial statements and related data to derive estimates and inferences useful in business analysis**
- **Through it, an analyst will better understand and interpret both qualitative and quantitative financial information so that reliable inferences are drawn about company prospects and risks**

# Information Sources for Business Analysis

## Quantitative

- Financial Statements
- Industry Statistics
- Economic Indicators
- Regulatory filings
- Trade reports

## Qualitative

- Management Discussion & Analysis
- Chairperson's Letter
- Vision/Mission Statement
- Financial Press
- Press Releases
- Web sites

Credit Analysis
Equity Analysis
Management & Control
Labor Negotiations
Types (and Users) of Business Analysis
Regulation
Director Oversight
Financial Management
External Auditing
Mergers, Acquisitions & Divestitures

# Credit Analysis

## Creditors

### Trade Creditors

- Provide goods or services
- Most short-term
- Usually implicit interest
- Bear risk of default

### Non-trade Creditors

- Provide major financing
- Most long-term
- Usually explicit interest
- Bear risk of default

# Credit Analysis

**Credit worthiness: Ability to honor credit obligations (downside risk)**

## Liquidity

**Ability to meet short-term obligations**

***Focus*:**

- **Current Financial conditions**
- **Current cash flows**
- **Liquidity of assets**

## Solvency

**Ability to meet long-term obligations**

***Focus*:**

- **Long-term financial conditions**
- **Long-term cash flows**
- **Extended profitability (sustainable earning power): main source of assurance to meet long-term obligations**

# Equity Analysis

**Equity investors**

- **Provide funds in return for risks and rewards of ownership**
- **Hold *residual interest*: the first to absorb losses (limited to amount invested) and share the gain (unlimited)**
- **Are affected by all aspects of a company's financial condition and performance**

# Equity Analysis

**Fundamental analysis: process of determining the value of a company by analyzing and interpreting key factors for the economy, the industry and the company. (downside risk and upside potential)**

↓

**A major goal of fundamental analysis is to determine <u>INTRINSIC VALUE</u>**

# Intrinsic Value
## (or Fundamental Value)

**Value of Company (or stock) without reference to market value (or stock price)**

**Strategy**

**Intrinsic value > Market value → Buy**

**Intrinsic value < Market value → Sell**

**Intrinsic value = Market value → Hold**

# Component processes of Business Analysis

# Accounting Analysis

**Process to evaluate and adjust financial statements to better reflect economic reality**

**Comparability problems — across firms and across time**

**Distortion problems**
- **Manager estimation error**
- **Earnings management**
- **Distortion of business**

} **Accounting Risk**

# Financial Analysis

**Process to evaluate financial position and performance using financial statements**

**Profitability analysis—Evaluate return on investments**

**Risk analysis ——— Evaluate riskiness & creditworthiness**

**Sources and uses of funds analysis —Evaluate source & deployment of funds**

| Common tools | |
|---|---|
| Ratio analysis | Cash flow analysis |
| Comparative analysis | |

# Prospective Analysis

**Process to forecast future payoffs**

**Business Environment & Strategy Analysis**

**Accounting Analysis**

**Financial Analysis**

**Intrinsic Value (Strategy value)**

# Dynamics of Business Activities

# Business Activities

**Financing activities**

- **Owner (equity)**
- **Nonowner (liabilities)**

# Business Activities

**Investing activities**

- **Buying resources**
- **Selling resources**

**Investing = Financing**

# Business Activities

# Financial Statements Reflect Business Activities

## Planning

### Investing

**Current:**

- Cash
- Accounts Receivable
- Inventories
- Marketable Securities

**Noncurrent:**

- Land, Buildings, & Equipment
- Patents
- Investments

### Operating

- Sales
- Cost of Goods Sold
- Selling Expense
- Administrative Expense
- Interest Expense
- Income Tax Expense

### Financing

**Current:**

- Notes Payable
- Accounts Payable
- Salaries Payable
- Income Tax Payable

**Noncurrent:**

- Bonds Payable
- Common Stock
- Retained Earnings

**Net Income** → **Income statement**

**Liabilities & Equity** → **Balance Sheet**

**Assets** → **Balance Sheet**

**Cash Flow** → **Statement of Cash Flows**

**Statement of Shareholders' Equity**

# Financial Statements

- **Balance Sheet**
- **Income Statement**
- **Statement of Shareholders' Equity**
- **Statement of Cash Flows**

# Kodak

**Dec 31, 2001** **(In millions, except per share data)**

## Assets

| | |
|---|---|
| Current Assets | |
| Cash and cash equivalents | $ 448 |
| Receivables | 2,337 |
| Inventories | 1,137 |
| Deferred income tax charges | 521 |
| Other | 240 |
| Total current assets | 4,683 |
| Properties | |
| Land, buildings and equipment at cost | 12,982 |
| Less: Accumulated depreciation | 7,323 |
| Net properties | 5,659 |
| Other Assets | |
| Goodwill (net of accumulated amortization of $920) | 948 |
| Other non-current assets | 2,072 |
| **Total Assets** | $ 13,362 |

## Liabilities and Shareholders' Equity

| | |
|---|---|
| Current Liabilities | |
| Payables | $ 3,276 |
| Short-term borrowings | 1,378 |
| Accrued income taxes | 544 |
| Current maturities of LTD | 156 |
| Total current liabilities | 5,354 |
| Other Liabilities | |
| Long-term borrowings | 1,666 |
| Post-employment liabilities | 2,728 |
| Other long-term liabilities | 720 |
| Total liabilities | 10,468 |

## Shareholders' Equity

| | |
|---|---|
| Common stock, par value $2.50 per share, 950,000,000 shares authorized; issued 391,292,760 shares | 978 |
| Additional paid in capital | 849 |
| Retained earnings | 7,431 |
| Accumulated other comprehensive loss | (597) |
| | 8,661 |
| Treasury stock, as cost, 100,363,059 shares | 5,767 |
| Total shareholders' equity | 2,894 |
| **Total liabilities and equity** | $ 13,362 |

# Balance Sheet

## ACCOUNTING EQUATION

**Total Investing = Total Financing**

**= Creditor Financing + Owner Financing**

| Kodak Financing |
| --- |
| **$13,362 = $10,468 + $2,894** |

# Income Statement

## Kodak

**For Year Ended Dec. 31, 2001 (In millions)**

| | |
|---|---|
| Sales | $13,234 |
| Cost of goods sold | 8,670 |
| Gross profit | 4,564 |
| Selling, general and administrative expenses | 2,627 |
| Research and development costs | 779 |
| Goodwill amortization | 154 |
| Restructuring costs and asset impairments | 659 |
| **EARNINGS FROM OPERATIONS** | 345 |
| Interest expense | 219 |
| Other income (charges) | (18) |
| Earnings before income taxes | 108 |
| Provision for income taxes | 32 |
| **NET EARNINGS** | 76 |

# Statement of Shareholders' Equity

## Kodak

**For year ended Dec. 31, 2001**

| (In millions, except number of shares) | Common Stock | Additional Pail In Capital | Retained Earnings | Accumulated Other Comprehensive Income (Loss) | Treasury Stock | Total |
|---|---|---|---|---|---|---|
| **Shareholders' Equity Dec 31, 2000** | 978 | 871 | 7,869 | (482) | (5,808) | 3,428 |
| Net earnings | - | - | 76 | - | - | 76 |
| Other comprehensive income (loss): | | | | | | |
| Unrealized holding gains arising during period ($34 million pre-tax) | - | - | - | (21) | - | (21) |
| Reclassification adjustment for gains included in net earnings ($13 million pre-tax) | - | - | - | 8 | - | 8 |
| Currency translation adjustment | - | - | - | (98) | - | (98) |
| Minimum pension liability adjustment ($7 million pre-tax) | - | - | - | (37) | - | (37) |
| Hedging gains (losses) | - | - | - | 33 | | 33 |
| Comprehensive loss | - | - | - | (115) | - | (115) |
| Cash dividends declared | - | - | (514) | - | - | (514) |
| Treasury stock repurchased (3,541,295 shares) | - | - | - | - | (41) | (41) |
| Treasury stock issued under employee plans (1,393,105 shares) | - | (25) | - | - | 82 | 57 |
| Tax reductions – employee plans | - | 3 | - | - | - | 3 |
| **Shareholders' Equity Dec 31, 2001** | $978 | $849 | $7,431 | $ (597) | ($5,767) | $2,894 |

# Statement of Cash Flows

## Kodak

### For year Ended Dec. 31, 2001 (In millions)

| | |
|---|---|
| Cash flows from operating activities: | |
| Net Earnings | $ 76 |
| Adjustments to reconcile to net cash provided by operating activities: | |
| Depreciation and amortization | 919 |
| Restructuring costs | 830 |
| Provisions (benefit) for deferred income taxes | (44) |
| (Increase) decrease in receivables | 252 |
| (Increase) decrease in inventories | 461 |
| (Decrease) increase in liabilities excluding borrowings | (529) |
| Other items, net | 100 |
| Net cash provided by operating activities | 2,065 |
| Cash flow from Investing activities: | |
| Additions to properties | (743) |
| Acquisitions, net of cash acquired | (306) |
| Marketable securities - sales | 54 |
| Marketable securities - purchases | (52) |
| Net cash used in investing activities | (1,047) |
| Cash flows from financing activities: | |
| Net increase (decrease) in borrowings with original maturities of 90 days or less | (695) |
| Proceeds from other borrowings | 1,907 |
| Repayment of other borrowings | (1,355) |
| Dividends to shareholders | (643) |
| Exercise of employee stock options | 22 |
| Stock repurchase programs | (44) |
| Net cash provided by (used in) financing activities | (808) |
| Effect of exchange rate changes on cash | (8) |
| **Net (decrease) increase in cash and cash equivalents** | 202 |

# Financial Statement Links - Kodak

## Statement of Cash Flows for Year Ended Dec. 31, 2001

| | |
|---|---|
| Operating Cash flows | $ 2,065 |
| Investing Cash flows | (1,047) |
| Financing Cash flows | (808) |
| Exchange rate changes on cash | (8) |
| Net Change in Cash | $ 202 |
| Cash Balance, Dec. 31, 2000 | 246 |
| Cash Balance, Dec. 31, 2001 | $ 448 |

## Balance Sheet Dec. 31, 2000

| | |
|---|---|
| Assets | |
| Cash | $ 246 |
| Non-Cash Assets | 13,966 |
| Total Assets | $14,212 |
| Liabilities & Equity | |
| Total liabilities | $ 10,784 |
| Equity: | |
| Share Capital | 1,849 |
| Retained Earnings | 7,387 |
| Treasury Stock | (5,808) |
| Total equity | $ 3,428 |
| Liabilities & Equity | $14,212 |

## Income Statement for Year Ended Dec. 31, 2001

| | |
|---|---|
| Sales | $13,234 |
| Expenses | (13,158) |
| Net Earnings | $ 76 |
| Other Comprehensive Income | (115) |
| Comprehensive Income | $ (39) |

## Statement of Shareholders' Equity for Year Ended Dec. 31, 2001

| | |
|---|---|
| Share Capital, Dec. 31, 2000 | $ 1,849 |
| Adjustments/Stock Issue | (22) |
| Share Capital, Dec. 31, 2001 | $ 1,827 |
| Retained Earnings, Dec. 31, 2000 | $ 7,387 |
| Add: Comprehensive Income | (39) |
| Less: Dividends | (514) |
| Retained Earnings, Dec. 31, 2001 | $ 6,834 |
| Treasury Stock, Dec. 31, 2000 | $ 5,808 |
| Treasury Stock Issued | 82 |
| Treasury Stock Repurchased | (41) |
| Treasury Stock, Dec. 31, 2001 | $ 5,767 |

## Balance Sheet Dec. 31, 2001

| | |
|---|---|
| Assets | |
| Cash | $ 448 |
| Non-Cash Assets | 12,914 |
| Total Assets | $13,362 |
| Liabilities & Equity | |
| Total liabilities | $10,468 |
| Equity: | |
| Share Capital | 1,827 |
| Retained Earnings | 6,834 |
| Treasury Stock | (5,767) |
| Total equity | $ 2,894 |
| Liabilities & Equity | $13,362 |

(Point in time) Dec. 31, 2000 — (Period of time) — Dec. 31, 2001 (Point in time)

# Additional Information

## (Beyond Financial Statements)

- **Management Discussion & Analysis (MD&A)**
- **Management Report**
- **Auditor Report**
- **Notes to Financial Statements**
- **Supplementary information**

# Analysis Preview

## Sets of tools for financial analysis

1. Comparative financial statements analysis
2. Common-size financial statement analysis
3. Ratio analysis
4. Cash flow analysis
5. Valuation

# Analysis Preview

## Comparative Analysis

Purpose: Evaluation of consecutive financial statements

Output: Direction, speed, & extent of any trend(s)

Types:
- Year-to-year Change Analysis
- Index-Number Trend Analysis

# Analysis Preview

## Kodak's Comparative Income Statements

| | *2001* | *2000* | *Change (in mil.)* | *Change %* |
|---|---|---|---|---|
| Sales | $ 13,234 | $13,994 | $ (760) | (5.4)% |
| Cost of goods sold | 8,670 | 8,375 | 295 | 3.5 |
| Gross profit | $ 4,564 | $ 5,619 | $ (1,055) | (18.8) |
| Operating Expenses: | | | | |
| Selling, general and admin. | 2,781 | 2,665 | 116 | 4.4 |
| Research and development | 779 | 784 | (5) | (0.6) |
| Restructuring costs | 659 | (44) | 703 | - |
| Earnings from operations | $ 345 | $2,214 | $(1,869) | (84.4) |
| Interest Expense and other | 237 | 82 | 155 | 189.0 |
| Other income (charges) | - | - | - | - |
| Earnings before income taxes | $ 108 | $ 2,132 | $ (2,024) | (94.9) |
| Provision for income taxes | 32 | 725 | (693) | (95.6) |
| **Net earnings** | $ 76 | $ 1,407 | $ (1,331) | (94.6) |

# Analysis Preview

## Common-Size Analysis

Purpose :
- Evaluation of internal makeup of financial statements
- Evaluation of financial statement accounts across companies

Output: Proportionate size of assets, liabilities, equity, revenues, & expenses

# Analysis Preview

## Common-Size Analysis

### Kodak's Common-Size Income Statements

| | 2001 | 2000 |
|---|---|---|
| Sales | 100.0% | 100.0% |
| Cost of goods sold | 65.5 | 59.9 |
| Gross profit | 34.5% | 40.1% |
| Selling, general and administrative expenses | 21.0 | 19.0 |
| Research and development costs | 5.9 | 5.6 |
| Restructuring Costs | 5.0 | (0.3) |
| Earnings from operations | 2.6% | 15.8% |
| Interest expense and other costs (credits) | 1.8 | 0.6 |
| Earnings before income taxes | 0.8% | 15.2% |
| Provision for income taxes | 0.2 | 5.2 |
| **Net earnings** | 0.6% | 10.0% |

# Analysis Preview

## Ratio Analysis

**Purpose :** Evaluate relation between two or more economically important items (one starting point for further analysis)

**Output:** Mathematical expression of relation between two or more items

**Cautions:**

- Prior Accounting analysis is important
- Interpretation is key -- long vs short term & benchmarking

# Analysis Preview

## Ratio Analysis

1. **Credit (risk analysis)**
   - **Liquidity**
   - **Capital structure and Solvency**
2. **Profitability analysis**
   - **Return on investment**
   - **Operating performance**
   - **Asset utilization**
3. **Valuation (market measure)**

# Analysis Preview

## Valuation

**Valuation - an important goal of many types of business analysis**

| | |
|---|---|
| **Purpose:** | **Estimate intrinsic value of a company (or stock)** |
| **Basis:** | **Present value theory (time value of money)** |

# Analysis Preview

## Debt (Bond) Valuation

$$B_t = \frac{I_{t+1}}{(1+r)^1} + \frac{I_{t+2}}{(1+r)^2} + \frac{I_{t+3}}{(1+r)^3} + \cdots + \frac{I_{t+n}}{(1+r)^n} + \frac{F}{(1+r)^n}$$

$B_t$ is the value of the bond at time *t*
$I_{t+n}$ is the interest payment in period *t+n*
F is the principal payment (usually the debt's face value)
*r* is the interest rate (yield to maturity)

# Analysis Preview

## Equity Valuation - Dividend Discount Model

$$V_t = \frac{E(D_{t+1})}{(1+k)^1} + \frac{E(D_{t+2})}{(1+k)^2} + \frac{E(D_{t+3})}{(1+k)^3} + \cdots + \frac{E(D_{t+n})}{(1+k)^n} + \cdots$$

$V_t$ is the value of an equity security at time *t*
$D_{t+n}$ is the dividend in period *t+n*
k is the cost of capital
E(•) refers to *expected* dividends

# Analysis Preview

## Equity Valuation - Free Cash Flow Model

$$V_t = \frac{E(FCF_{t+1})}{(1+k)^1} + \frac{E(FCF_{t+2})}{(1+k)^2} + \frac{E(FCF_{t+3})}{(1+k)^3} + \cdots + \frac{E(FCF_{t+n})}{(1+k)^n} + \cdots$$

$FCF_{t+n}$ is the free cash flow in the period $t + n$ [often defined as operating cash flow, adjusted for interest and revenues, less investments in operating assets]

k is the cost of capital

E(•) refers to an expectation

# Analysis Preview

## Equity Valuation - Residual Income Model

$$V_t = BV_t + \frac{E(RI_{t+1})}{(1+k)^1} + \frac{E(RI_{t+2})}{(1+k)^2} + \frac{E(RI_{t+3})}{(1+k)^3} + \cdots + \frac{E(RI_{t+n})}{(1+k)^n} + \cdots$$

$Ri_{t+n}$ is the **residual income** in period *t* + *n* [defined as net income, NI, minus a charge on beginning book value, BV, or $\underline{RI_t = NI_t - (k \times BV_{t-1})}$

k is the cost of capital

E(•) refers to an expectation

# Investment theory and financial statement analysis

## Portfolio Theory

- **Under certain assumptions, portfolio theory produces a linear relation between risk and return**
- **The greater the perceived risk of an investment or a loan, the greater is the required rate of return to compensate for that risk**
- **Proper diversification can lower risk while preserving expected returns.**

# Investment theory and financial statement analysis

**Beta coefficient theory asserts that total risk associated with an investment is made up of two elements**

## 1) Systematic Risk

**Risk attributed to prevailing market movements.**

## 2) Unsystematic Risk

**Residual risk unexplained by market movements. Risk unique to a specific security.**

- **Economic risk**
- **Business risk**
- **Financial risk (risk of capital structure)**
- **Accounting risk (application of accounting methods)**

# Investment theory and financial statement analysis

## Capital Asset Pricing Model

$$E(R_i) = E(R_0) + [E(R_M) - E(R_0)] \times ß_i$$

**$E(R_i)$:** expected return of an individual security *i*
**$ß_I$** : security's systematic risk
**$E(R_0)$:** Expected return of a riskless security
**$E(R_M)$:** Market expected return