



A86045 Accounting and Financial Reporting (2018/2019)

Session 2

Financial Analysis: Ratio Analysis

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SESSION 2 SESSION OBJECTIVES & OVERVIEW



Session 2 Overview

| | Mins |
|--|----------|
| Session objectives and overview | 5 |
| Review of pre-work and session 1 recap | 15 |
| Financial and ratio analysis | 30 |
| Market measures, analysts focus and other considerations | 15 |
| Ratio analysis, trend analysis and common size analysis | 15 |
| Required reading and assignment for next session | 5 |
| Summary and validation and overview Session 3 | <u>5</u> |
| | 90 |

Course Objectives

At the end of this course students will be able to:

- ***Read and perform a high level interpretation*** of the financial statements of companies applying international accounting standards
- ***Identify and evaluate*** the impact on a companies accounts of alternative accounting methods
- ***Carry out a high level assessment*** of the the economic- financial position of a company reporting under IAS/IFRS.

Course Overview

| | | | |
|-----|---|----------------------------------|-----|
| | 1. Financial reporting under IFRS | 13. Inventories | |
| PGS | 2. Financial analysis: Ratio analysis | 14. Construction contracts | |
| | 3. Financial analysis: Segments and EPS | 15. Non-financial liabilities | |
| | 4. Review session | 16. Review session | |
| | 5. Revenues | 17. Mid term test | |
| | 6. Costs and expenses | 18. Financial Instruments 1 | PT |
| | 7. Taxation - Direct and Indirect | 19. Financial Instruments 2 | |
| | 8. Non-current assets - Intangible assets | 20. Cash Flow Statement | |
| PT | 9. Non-current assets - Tangible assets | 21. Group accounts/Business comb | |
| | 10. Financial leases | 22. Review session | |
| | 11. Impairment of assets | 23. Final test | PGS |
| | 12. Review session | | |

Objectives of Session 2 & 3

At the end of these two sessions, and the following review session, students will be able to:

- **Apply** the basic techniques of financial analysis
 - Ratio analysis
 - Trend analysis
 - Common size analysis
- **Perform** a high level assessment of a company's:
 - Profitability
 - Liquidity
 - Efficiency
 - Investment risk



SESSION 1 RECAP AND PRE-WORK

Session 1 recap

- Introductions
- Course objectives, overview, reference materials, teaching methods
- Evolution of accounting, stakeholders, IASs and IFRSs
- The 5 Components of Financial statements and linkages between them
- Basic bookkeeping recap
- Reading, research and assignment for next session

Session 1 recap - Cont'd

- Understanding the Financial Statements Required by IAS 1
 - Profit or loss and other comprehensive income (one or two statements, by nature or destination)
 - Financial position (classified or unclassified)
 - Changes in equity
 - Cash flows (Direct or indirect method)
 - Notes
- Currents Assets
- Current Liabilities
- The Linkages among the 4 Financial Statements

Required Reading and research assignment

- Reading
 - Melville
 - Chapter 1 – The Regulatory Framework (14 pages)
 - Chapter 2 – The IASB Conceptual Framework (19 pages)
 - **Chapter 3 – Presentation of Financial Statements (30 pages)**
 - Chapter 4 – Accounting policies, accounting estimates and errors (5 pages)
 - Chapter 21 – Related Parties and Changes in foreign exchange rates (7 pages)
 - IFRS
 - **IAS 1 Presentation of Financial Statements (38 pages)**
- Exercises
 - Melville Exercises 3.1 – 3.6
 - Melville On-line multiple choice questions for the above chapters
 - Exercise EX 1 Financial Statements
- Research assignment
 - European companies in the Top Global 100 companies using IFRS
 - RA 1 Financial Statement Presentation options
 - RA 2 Data collection template for chosen companies



Research Assignment 2 Data collection

- Choose a company from the list of Europe's Top Companies
- Obtain the 2017/2018 Annual Report and/or Form 20F (for US SEC Registrants)
- Locate the Consolidated Financial Statements prepared under IFRS
- Complete the template for the profit and loss accounts and statements of financial position
- Obtain an understanding of the company's Business Model.



Research Assignment 1 - Financial Statement Presentation Options

Company _____

Statement of Profit or Loss and Other Comprehensive Income

- Single Statement or Two Separate Statements
- Expense by Nature or Expenses by destination or Function

Statement of Financial Position

- Current/Non-current distinction or By Order of Liquidity

Statement of Cash Flows

- Indirect Method or Direct Method

RA 1 Financial Statement Presentation

| | Statement of Profit or Loss and Other Comprehensive Income | Statement of Financial Position | Cash Flow Statement | |
|----------|--|---------------------------------|----------------------------------|--------------------|
| | P&L and OCI One or Two Statements | P&L by Nature or Function | Current/Non-current or Liquidity | Direct or Indirect |
| Bayer | Two | Function | Current/Non-current | Indirect |
| L'Oreal | Two | Function | Current/Non-current | Indirect |
| LVMH | Two | Function | Current/Non-current | Indirect |
| Nestlé | Two | Function | Current/Non-current | Indirect |
| Shell | Two | Nature | Current/Non-current | Indirect |
| Unilever | Two | Function* | Current/Non-current | Indirect** |

* Note 3 for analysis

** Note 17A Reconciliation of net cash flow from operating activities

Business Models

- How a company plans to make money.
- Spreadsheets made it possible to model businesses – by accident more than by design.
- Two part model
 - 1. activities associated with making something: design, purchase of raw materials, manufacturing etc.
 - 2. activities associated with selling something: finding and reaching customers, transacting a sale etc.
- Not to be confused with strategy – i.e. offering a better business model or to a different market



RATIO ANALYSIS

Ratio analysis

- Profitability
- Liquidity
- Efficiency
- Investment

Facilitates trend analysis (comparison over time) and the comparison with other companies in the same and/or other industries irrespective of the company's size or currency used to prepare the financial statements (Common size analysis)

Profitability ratios

Relative to sales

$$\text{Gross profit margin \%} = \frac{\text{Gross Profit}^*}{\text{Sales}} \times 100$$

* (Net sales – cost of sales)

$$\text{Operating profit margin \%} = \frac{\text{Operating Profit}^{**}}{\text{Sales}} \times 100$$

** (Gross Profit – operating expenses)

$$\text{Net profit margin \%} = \frac{\text{Net income}}{\text{Sales}} \times 100$$

Sales = net sales/sales excluding VAT/sales revenues/consolidated sales revenues/revenue(s)/total revenues/group revenues/turnover

Gross profit = gross margin

Operating profit = operating income/income from operations

Net income = income for the period/consolidated net income/net profit/net profit for the year/profit after tax/profit for the period (year) (financial year)

Profitability ratios Cont'd

Relative to Investment

$$\text{Return on capital employed (ROCE) \% **} = \frac{\text{Profit before Interest expense and tax (PBIT/EBIT)}}{\text{Shareholders equity* + Long-term debt*}} \times 100$$

$$\text{Return on equity (ROE) \%} = \frac{\text{Profit after tax}}{\text{Shareholder's equity*}} \times 100$$

Shareholders' equity = Net assets, Capital employed, Equity, Total equity, stockholders' equity

*Technically should be based on the average of beginning and ending amounts

** Melville uses Non-current liabilities as opposed to Long-term debt

Liquidity ratios

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad X : 1$$

$$\text{Quick ratio (acid test)} = \frac{\text{Current assets} - \text{inventories}^*}{\text{Current liabilities}} \quad X : 1$$

* Inventories = Inventories and work-in-progress, stock-in-trade

Efficiency ratios

$$\text{Asset turnover}^{**} = \frac{\text{Sales}}{\text{Non-current assets}^*} \quad \text{Times}$$

$$\text{Inventory turnover} = \frac{\text{Cost of sales}}{\text{Inventory}^*} \quad \text{Times}$$

$$\text{Inventory holding period (DOI)} = \frac{\text{Inventory}^*}{\text{Cost of sales}} \times 365 \quad \text{Days}$$

Inventories = Inventories and work-in-progress, stock-in-trade
 Cost of sales = Cost of revenues

*Technically should be based on average of beginning and ending amounts

** Melville uses net assets or capital employed

Efficiency ratios Cont'd

$$\text{Accounts receivable collection period (DSO)} = \frac{\text{*Accounts receivable (less VAT)}}{\text{Credit Sales}} \times 365 \text{ Days}$$

$$\text{Accounts payable collection period (DPO)} = \frac{\text{*Accounts payable (less VAT)}}{\text{Credit purchases}} \times 365 \text{ Days}$$

Accounts receivable = trade accounts receivable, receivables, trade receivables

Accounts payable = trade accounts payable, accounts payable trade, current trade and other payables

* Technically should be based on average of beginning and ending amounts

Investment ratios

$$\text{Earnings per share (IAS 33)} = \frac{\text{Net income}}{\text{Weighted average number of ordinary shares outstanding during the year}}$$

$$\text{Price/Earnings (P/E)} = \frac{\text{Share market price}}{\text{Earning per share (EPS)}}$$

$$\text{Dividend cover} = \frac{\text{Net income}}{\text{Dividends}} \quad \text{OR} \quad \frac{\text{Earning per share (EPS)}}{\text{Dividend per share}}$$

$$\text{Dividend Yield \%} = \frac{\text{Dividend per share}}{\text{Share market price}} \times 100$$

Investment ratios cont'd

$$\text{Capital Gearing} = \frac{\text{Long-term debt}}{\text{*Equity}}$$

$$\text{Interest cover} = \frac{\text{Profit before interest expense and tax (PBIT/EBIT)}}{\text{Interest expense}}$$

Long-term debt = financial liabilities, long-term borrowings, financial debts, interest bearing loans and borrowings, debt, financial debt, non-current financial debt, non-current borrowings and debt, borrowings and other financial liabilities

Interest expense = finance costs, financing costs, financial expenses, finance expense, financial interest on debt, cost of net financial debt, finance costs on gross debt

* Melville uses Equity + Non-current liabilities

MARKET MEASURES, ANALYSTS FOCUS AND OTHER CONSIDERATIONS

Measures that Matter

1. Execution of corporate strategy
2. Management credibility
3. Quality of corporate strategy
4. Innovativeness
5. Ability to attract and retain talented people
6. Market share
7. Management experience
8. Alignment of compensation with shareholder interests
9. Research leadership
10. Quality of major business processes

Analysts Focus

- EBITDARM
- EBITDAR
- EBITDA
- EBIT
- EBT

Earnings before tax, interest, depreciation, amortization, rents and restructuring, management fees

Other useful ratios/information

- Effective tax rate (Income taxes as a % of Pre-tax income)
- Intangibles as a % total assets
- Intangibles as a % of equity
- Debt maturities/covenants
- Market Capitalization vs. Net equity
- R&D as a % of revenues
- Contingencies

Expected relationships among data – some examples

| Observation | Consequence |
|---|--|
| Sales increase | Accounts receivable increase but DSO should remain the same. Inventories may decrease unless production has increased |
| Gross margin increases | Sales prices have increased, prices of raw materials have decreased or a change in mix of sales to more profitable products/services |
| Working capital increases | Improved collection of accounts receivables, delayed payment of creditors, positive cash flows from investing and financing activities |
| Effective tax rate is lower than statutory tax rate | Use of prior year tax losses, proportion of profit from countries with lower tax rates, existence of non-taxable income |
| Inventory decreases | Sales increase |

RATIO, TREND & COMMON SIZE ANALYSIS

Ratio Analysis

Profitability

| | | |
|---|---|---------|
| Gross margin (Gross profit/Revenues) | % | #DIV/0! |
| Operating margin (Operating profit/Revenues) | % | #DIV/0! |
| Net profit margin (Net profit/Revenues) | % | #DIV/0! |
| Return on equity (Net profit/Shareholders' equity) | % | #DIV/0! |
| Return on Capital employed (PBIT/Shareholders' equity + Long-term debt) | % | #DIV/0! |

Liquidity

| | | |
|--|---------|---------|
| Current ratio (Current assets/Current liabilities) | Ratio:1 | #DIV/0! |
| Quick ratio (Current assets - inventory/Current liabilities) | Ratio:1 | #DIV/0! |

Efficiency ratios

| | | |
|--|-------|---------|
| Asset Turnover (Sales/Non-current assets) | Times | #DIV/0! |
| Inventory holding period (DOI) (Cost of sales/inventory x 365) | Days | #DIV/0! |
| Inventory turnover (Cost of sales/inventory) | Times | #DIV/0! |
| Trade receivables collection period (DSO) | Days | #DIV/0! |
| Trade payable payment period (DPO) | Days | #DIV/0! |

Investment ratios

| | | |
|--|-------|---------|
| Earnings per share (EPS) | USD | #DIV/0! |
| Price Earnings ratio (P/E) (Share price/EPS x CHF Xrate) | Times | #DIV/0! |
| Dividend cover | Times | #DIV/0! |
| Dividend yield | % | #DIV/0! |
| Debt/Equity ratio (Gearing) | Ratio | #DIV/0! |
| Interest cover | Times | #DIV/0! |

Other

| | | |
|------------------------------------|---|---------|
| Effective tax rate | % | #DIV/0! |
| R&D as a % of revenues | % | #DIV/0! |
| Intangibles as a % of total assets | % | #DIV/0! |
| Intangibles as a % of equity | % | #DIV/0! |

Comparisons amongst data

Trend Analysis

| | | Year 1 | Year 2 | Year 3 |
|---|---------|---------|---------|---------|
| Profitability | | | | |
| Gross margin (Gross profit/Revenues) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Operating margin (Operating profit/Revenues) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Net profit margin (Net profit/Revenues) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Return on equity (Net profit/Shareholders' equity) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Return on Capital employed (PBIT/Shareholders' equity + Long-term debt) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Liquidity | | | | |
| Current ratio (Current assets/Current liabilities) | Ratio:1 | #DIV/0! | #DIV/0! | #DIV/0! |
| Quick ratio (Current assets - inventory/Current liabilities) | Ratio:1 | #DIV/0! | #DIV/0! | #DIV/0! |
| Efficiency ratios | | | | |
| Asset Turnover (Sales/Non-current assets) | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Inventory holding period (DOI) (Cost of sales/inventory x 365) | Days | #DIV/0! | #DIV/0! | #DIV/0! |
| Inventory turnover (Cost of sales/inventory) | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Trade receivables collection period (DSO) | Days | #DIV/0! | #DIV/0! | #DIV/0! |
| Trade payable payment period (DPO) | Days | #DIV/0! | #DIV/0! | #DIV/0! |
| Investment ratios | | | | |
| Earnings per share (EPS) | USD | #DIV/0! | #DIV/0! | #DIV/0! |
| Price Earnings ratio (P/E) (Share price/EPS x CHF Xrate) | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Dividend cover | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Dividend yield | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Debt/Equity ratio (Gearing) | Ratio | #DIV/0! | #DIV/0! | #DIV/0! |
| Interest cover | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Other | | | | |
| Effective tax rate | % | #DIV/0! | #DIV/0! | #DIV/0! |
| R&D as a % of revenues | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Intangibles as a % of total assets | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Intangibles as a % of equity | % | #DIV/0! | #DIV/0! | #DIV/0! |

Comparison over time

Common Size Analysis

| | | Co A | Co B | Co C |
|---|---------|---------|---------|---------|
| Profitability | | | | |
| Gross margin (Gross profit/Revenues) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Operating margin (Operating profit/Revenues) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Net profit margin (Net profit/Revenues) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Return on equity (Net profit/Shareholders' equity) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Return on Capital employed (PBIT/Shareholders' equity + Long-term debt) | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Liquidity | | | | |
| Current ratio (Current assets/Current liabilities) | Ratio:1 | #DIV/0! | #DIV/0! | #DIV/0! |
| Quick ratio (Current assets - inventory/Current liabilities) | Ratio:1 | #DIV/0! | #DIV/0! | #DIV/0! |
| Efficiency ratios | | | | |
| Asset Turnover (Sales/Non-current assets) | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Inventory holding period (Cost of sales/inventory x 365) | Days | #DIV/0! | #DIV/0! | #DIV/0! |
| Inventory turnover (Cost of sales/inventory) | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Trade receivables collection period (DSO) | Days | #DIV/0! | #DIV/0! | #DIV/0! |
| Trade payable payment period (DPO) | Days | #DIV/0! | #DIV/0! | #DIV/0! |
| Investment ratios | | | | |
| Earnings per share (EPS) | USD | #DIV/0! | #DIV/0! | #DIV/0! |
| Price Earnings ratio (P/E) (Share price/EPS x CHF Xrate) | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Dividend cover | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Dividend yield | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Debt/Equity ratio (Gearing) | Ratio | #DIV/0! | #DIV/0! | #DIV/0! |
| Interest cover | Times | #DIV/0! | #DIV/0! | #DIV/0! |
| Other | | | | |
| Effective tax rate | % | #DIV/0! | #DIV/0! | #DIV/0! |
| R&D as a % of revenues | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Intangibles as a % of total assets | % | #DIV/0! | #DIV/0! | #DIV/0! |
| Intangibles as a % of equity | % | #DIV/0! | #DIV/0! | #DIV/0! |

Comparison with other companies
irrespective of size or reporting currency

REQUIRED READING AND RESEARCH ASSIGNMENT

Required Reading and research assignment

- Reading
 - Melville
 - Chapter 22 – Ratio Analysis (26 pages)
 - IFRS
 - None
- Exercises
 - Melville Exercises 22.1 – 22.6
 - Melville On-line multiple choice questions for the above chapter
 - Exercise EX 2 Financial Analysis Exercises
- Research assignment
 - European companies in the Top Global 100 companies using IFRS
 - RA 2 Data collection template for chosen companies
 - Calculate the profitability, liquidity, efficiency and investment ratios
 - Perform a three year trend analysis of the Profit and loss accounts
 - Perform a two year comparison of the statement of financial position
 - Identify reasons for significant fluctuations from the Company's Annual Report



RA1 Research assignment template

RA 2 Research Assignment Template

Research assignment template
Company

Income Statement

| | | 2016 | 2015 | 2014 |
|--|---|------------|------------|------------|
| | | € millions | € millions | € millions |
| Net sales | | | | |
| Other revenues | | | | |
| | <i>Total revenues</i> | <u>0</u> | <u>0</u> | <u>0</u> |
| Cost of sales | | | | |
| | <i>Gross profit</i> | <u>0</u> | <u>0</u> | <u>0</u> |
| Operating expenses | | | | |
| Research & development | | | | |
| Selling, general and administrative expenses | | | | |
| Depreciation, amortization and provisions | | | | |
| Other income (expense) | | | | |
| | <i>Operating profit</i> | <u>0</u> | <u>0</u> | <u>0</u> |
| Finance income (expense) | | | | |
| Share of result of associated companies | | | | |
| | <i>Pre-tax profit</i> | <u>0</u> | <u>0</u> | <u>0</u> |
| Income tax | | | | |
| | <i>Net profit continuing operations</i> | <u>0</u> | <u>0</u> | <u>0</u> |
| Discontinued operations | | | | |
| | <i>Net profit</i> | <u>0</u> | <u>0</u> | <u>0</u> |

Statement of financial position

| | 2016 | 2015 |
|---|------------|------------|
| | € millions | € millions |
| Non-current assets | | |
| Goodwill | | |
| Intangible assets | | |
| Property, plant & equipment | | |
| Investments | | |
| Deferred taxes | | |
| Other | <u>0</u> | <u>0</u> |
| Current assets | | |
| Inventories/Long-term contracts | | |
| Trade receivables | | |
| Other current assets | | |
| Short-term investments | | |
| Cash and cash equivalents | | |
| Assets held for disposal | <u>0</u> | <u>0</u> |
| Total assets | <u>0</u> | <u>0</u> |
| Current liabilities | | |
| Short-term Borrowings | | |
| Trade payables | | |
| Income taxes | | |
| Provisions | | |
| Other current liabilities | | |
| Liabilities held for disposal | <u>0</u> | <u>0</u> |
| Non-current liabilities | | |
| Long-term Borrowings | | |
| Provisions | | |
| Deferred tax liabilities | | |
| Pensions and employee benefits | | |
| Other | <u>0</u> | <u>0</u> |
| Shareholders' equity | <u>0</u> | <u>0</u> |
| Total equity and liabilities | <u>0</u> | <u>0</u> |
| Weighted Average number of shares outstanding | | |
| Share price | | |
| Market capitalization | <u>0</u> | <u>0</u> |
| Dividend per share | | |

RA2 Research assignment template

If the company classifies expenses by nature put all expenses into operating expenses

NB
In the income statement insert negative numbers with a minus sign

Session 2 summary

- Recap Session 1 and the 4 basic financial statements
- Financial analysis
- Ratio analysis (profitability, liquidity, efficiency and investment)
- Ratio, trend and common size analysis
- Reading, research and assignment for next session

Overview of Session 3

- Segment Analysis – (IFRS 8)
- Earnings per share – (IAS 33)
- Hands on application and discussion of financial analysis techniques using the companies researched
 - Common size analysis
 - Trend analysis
 - Ratio analysis
 - Industry comparisons

Session Validation

- Name the key ratio (s) used to assess liquidity
- What type of analysis do we perform to compare companies of different sizes and across different industries?
- What ratio would you use to assess a company's ability to continue to pay the interest on its loans as it becomes due?
- How many years data do we need to perform a meaningful trend analysis?