

Financial Statement Analysis

SMN 224 – Corporate Finance

Week 2

Outline

1. Financial statements analysis
2. Analyzing companies' financial performance
3. Ratio analysis
4. The Du Pont identity
5. Using financial statement information
6. External financing and growth

1. Financial Statements Analysis

- Analyzing financial statements requires benchmarks & comparison
- Common-Size Balance Sheets
 - Compute all accounts as a percent of total assets
- Common-Size Income Statements
 - Compute all line items as a percent of sales
- Standardized statements make it easier to compare financial information, particularly as the company grows
- They are also useful for comparing companies of different sizes, particularly within the same industry

The Statement of Financial Position Ryanair Holding Plc (Table 3.1 P43)

Non-current assets	€m	Equity	
PPE	3252.192	Issued share capital	9.465
Intangible assets	46.841	Share premium account	591.400
Available for sale financial assets	325.478	Retained earnings	2059.991
Total non-current assets	3624.511	Other reserves	-80.052
Current assets		Total Equity	2580.804
Inventories	2.777	Non-current Liabilities	
Other assets	113.711	Provisions	38.630
Trade receivables	24.519	Derivative Financial Instruments	49.440
Derivative financial instruments	57.907	Deferred Income Tax Liability	153.824
Restricted cash	171.728	Other Creditors	113.218
Financial assets: cash > 3 months	419.667	Non-current Maturities of Debt	1874.165
Cash and cash equivalents	1459.606	Total Non-current Liabilities	2229.277
Total current assets	2249.915	Current Liabilities	
		Trade payables	55.727
		Accrued expenses and other liabilities	676.863
		Current maturities of debt	194.834
		Derivative financial instruments	94.621
		Current tax	42.300
		Total current liabilities	1064.345
Total assets	5874.426	Total Equity and Liabilities	5874.426

Common-Size Balance sheet for Ryanair Holdings plc

Assets

•Non-Current Assets	61.70%
•Current Assets	38.30%

Total Assets **100.00%**

Liabilities and Shareholders' Equity

•Non-Current Liabilities	37.95%
•Current Liabilities	18.12%
•Shareholders' Equity	43.93%

**Total Liabilities and
Shareholders' Equity** **100.00%**

Consolidated Income Statement Ryanair Holding Plc (Table 3.2 P45)

Operating Revenues	(€m)
Scheduled revenues	1761
Ancillary revenues	363
Total operating revenues: continuing operations	2124
Operating expenses	
Staff costs	213
Depreciation	124
Fuel and oil	585
Maintenance, materials and repairs	41
Marketing and distribution costs	16
Aircraft rentals	55
Route charges	192
Airport and handling charges	303
Other	90
Total operating expenses	1618
Operating profit: continuing operations	506
Gain on disposal of PPE	14
Other income	
Finance income	63
Finance Expense	(70)
Foreign exchange gain (losses)	(2)
Total other income	(9)
Profit before Tax	510
Tax on profit on ordinary activities	(55)
Profit for the period	455

Common-size income statement for Ryanair Holdings plc

2. Analyzing firm's financial performance

- To analyze a firm's performance, one usually looks at a limited set of indicators
 - Share price (in £, variation)
 - Profits (in £, variation)
 - Dividends (in£, variation)
- But it is not sufficient to use absolute numbers

Example

- Take two firms, A & B
- The profits posted last year for firm A and firm B are, respectively, £100,000 and £150,000
- So you could say that firm A is less profitable than firm B
- Imagine that you are the sole shareholder in both firms, and that you invested £1 million in firm A and £2 million in firm B
- Now firm A looks more profitable than firm B: the latter's **return on equity** amounts to $\text{£}150,000/\text{£}2 \text{ million} = 7.5\%$ while firm A's ROE is $\text{£}100,000/\text{£}1 \text{ million} = 10\%$
- For financial analysis you use **financial ratios**

3. Ratio Analysis

- Ratios also allow for better comparison through time or between companies.
- As we look at each ratio, ask yourself:
 - How is the ratio computed?
 - What is the ratio trying to measure and why?
 - What is the unit of measurement?
 - What does the value indicate?
 - How can we improve the company's ratio?

Categories of Financial Ratios

- Short-term solvency or liquidity ratios
- Long-term solvency, or financial leverage ratios
- Asset management or turnover ratios
- Profitability ratios
- Market value ratios

Liquidity Ratios

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick Ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

$$\text{Cash ratio} = \frac{\text{Cash and Cash Equivalents}}{\text{Current liabilities}}$$

Liquidity Ratios: Ryanair Holdings plc

$$\text{Current ratio} = \frac{€2,250}{€1,064} = 2.11 \text{ times}$$

$$\text{Quick ratio} = \frac{€2,250 - 0.002}{€1,064} = 2.11 \text{ times}$$

$$\text{Cash ratio} = \frac{€1,459.606}{€1,064.345} = 1.37 \text{ times}$$

Long-Term Solvency Ratios

$$\text{Total debt ratio} = \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}}$$

$$\text{Debt to equity ratio} = \frac{\text{Total debt}}{\text{Total equity}}$$

$$\begin{aligned} \text{Equity multiplier} &= \text{Total assets} / \text{Total equity} \\ &= 1 + \text{Debt-equity ratio} \end{aligned}$$

Also called leverage ratios

$$\text{Times interest earned ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

$$\text{Cash coverage ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}}$$

Also called coverage ratios

Long-Term Solvency Ratios: Ryanair Holdings plc

$$\text{Total debt ratio} = \frac{\text{€}5,874 - 2,581}{\text{€}5,874} = .56 \text{ times}$$

$$\text{Debt–equity ratio} = \text{€}.56/\text{€}.44 = 1.27 \text{ times}$$

$$\text{Equity multiplier} = \text{€}1/\text{€}.44 = 2.27 \text{ times}$$

$$\text{Times interest earned ratio} = \frac{\text{€}581}{\text{€}70} = 8.3 \text{ times}$$

$$\text{Cash coverage ratio} = \frac{\text{€}581 + 124}{\text{€}70} = \frac{\text{€}705}{\text{€}70} = 10.1 \text{ times}$$

Asset Management Ratios

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}}$$

$$\text{Days' sales in inventory} = \frac{365 \text{ days}}{\text{Inventory turnover}}$$

Also called inventory ratios

$$\text{Receivables turnover} = \frac{\text{Sales}}{\text{Trade receivables}}$$

$$\text{Days' sales in receivables} = \frac{365 \text{ days}}{\text{Receivables turnover}}$$

1/TA = capital intensity ratio

Also called receivables ratios

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

Asset Management Ratios: Ryanair Holdings plc

$$\text{Receivables turnover} = \frac{\text{€2,124}}{\text{€25}} = 84.96 \text{ times}$$

$$\text{Days' sales in receivables} = \frac{365}{84.96} = 4.30 \text{ days}$$

$$\text{Total asset turnover} = \frac{\text{€2,124}}{\text{€5,874}} = .36 \text{ times}$$

Why don't we compute inventory ratios for Ryanair?

Profitability Ratios

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales}}$$

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}}$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Total equity}}$$

Profitability Ratios: Ryanair Holdings plc

$$\text{Profit margin} = \frac{\text{€}455}{\text{€}2,124} = 21.4\%$$

$$\text{Return on assets} = \frac{\text{€}455}{\text{€}5,874} = 7.75\%$$

$$\text{Return on equity} = \frac{\text{€}455}{\text{€}2,581} = 17.63\%$$

Market Value Ratios

$$\text{EPS} = \frac{\text{Net income}}{\text{Shares outstanding}}$$

$$\text{PE ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

$$\text{Market-to-book-ratio} = \frac{\text{Market value per share}}{\text{Book value per share}}$$

Dividend policy ratios

- Dividend payout ratio (d)

$$d = \text{Cash dividends} / \text{Net income}$$

- Retention ratio (b)

$$b = \text{Retained earnings} / \text{Net income}$$

$$= 1 - d$$

4. The Du Pont Identity

- Shows that ROE is affected by
 - Profit margin
 - Total asset turnover
 - Equity multiplier
- Start with simple definition of ROE
$$\text{ROE} = \text{Net income} / \text{Total equity}$$
- Ends up with
$$\text{ROE} = \text{PM} * \text{TAT} * \text{EM}$$

The Du Pont Identity: Proof

$$\begin{aligned}\text{Return on equity} &= \frac{\text{Net income}}{\text{Total equity}} = \frac{\text{Net income}}{\text{Total equity}} \times \frac{\text{Assets}}{\text{Assets}} \\ &= \frac{\text{Net income}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Total equity}}\end{aligned}$$

$$\text{ROE} = \frac{\text{Sales}}{\text{Sales}} \times \frac{\text{Net income}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Total equity}}$$

$$\text{ROE} = \underbrace{\frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}}}_{\text{Return on assets}} \times \frac{\text{Assets}}{\text{Total equity}}$$

$$= \text{Profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier}^{24}$$

Using the Du Pont Identity

- $ROE = PM * TAT * EM$
 - Profit margin is a measure of the firm's operating efficiency – how well it controls costs
 - Total asset turnover is a measure of the firm's asset use efficiency – how well it manages its assets
 - Equity multiplier is a measure of the firm's financial leverage

5. Using Financial Statements

- Ratios are not very helpful by themselves: they need to be compared to something
- Time-Trend Analysis
 - Look at the same ratio over a number of years
 - Used to see how the firm's performance is changing through time
- Peer Group Analysis
 - Compare ratio with similar companies or within industries
 - SIC and NAICS codes

SIC Codes: Examples

C Manufacturing

10 Manufacture of Food Products

22 Manufacture of Rubber and Plastic Products

24 Manufacture of Basic Metals

F Construction

41 Construction of Buildings

42 Civil Engineering

43 Specialised Construction Activities

K Financial and Insurance Activities

64 Financial Service Activities, except Insurance and Pension Funding

65 Insurance, Reinsurance and Pension Funding, except Compulsory Social Security

M Professional, Scientific and Technical Services

69 Legal and Accounting Activities

72 Scientific Research and Development

73 Advertising and Market Research

Potential Problems

- Inappropriate peers
 - Some firms operate in different industries: benchmarking is difficult for diversified firms
 - Globalization and international competition makes comparison more difficult because of differences in accounting regulations
 - Firms use varying accounting procedures
 - Firms have different fiscal years
- Extraordinary, or one-time, events
 - There is no underlying theory, so there is no way to know which ratios are most relevant

6. External Financing and Growth

- At low growth levels, internal financing (retained earnings) may exceed the required investment in assets
- As the growth rate increases, the internal financing will not be enough, and the firm will have to go to the capital markets for financing
- Examining the relationship between growth and the external financing required is a useful tool in long-range planning

Example: Paradise plc

Income Statement

Sales		£500
Costs		<u>400</u>
Taxable income		£100
Taxes (28%)		<u>28</u>
Net income		<u>£72</u>
Dividends	£24	
Addition to retained earnings	48	

Example: Paradise plc

Assets			Liabilities and Owners' Equity		
	£	% Sales		£	% Sales
Current assets	£200	40%	Total debt	£250	n/a
Non-current assets	<u>300</u>	<u>60</u>	Owners' equity	<u>250</u>	<u>n/a</u>
Total assets	<u>£500</u>	<u>100%</u>	Total liabilities and owners' equity	<u>£500</u>	<u>n/a</u>

Debt/equity ratio = 1

Example: Paradise plc

- You forecast sales of £600 next year (a 20% increase). What will be the new debt-equity ratio?

Sales (projected)		£600.0
Costs (80% of sales)		<u>480.0</u>
Taxable income		£120.0
Taxes (28%)		<u>33.6</u>
Net income		<u>£ 86.4</u>
Dividends	£28.8	
Addition to retained earnings	57.6	

D/E Ratio: Paradise plc

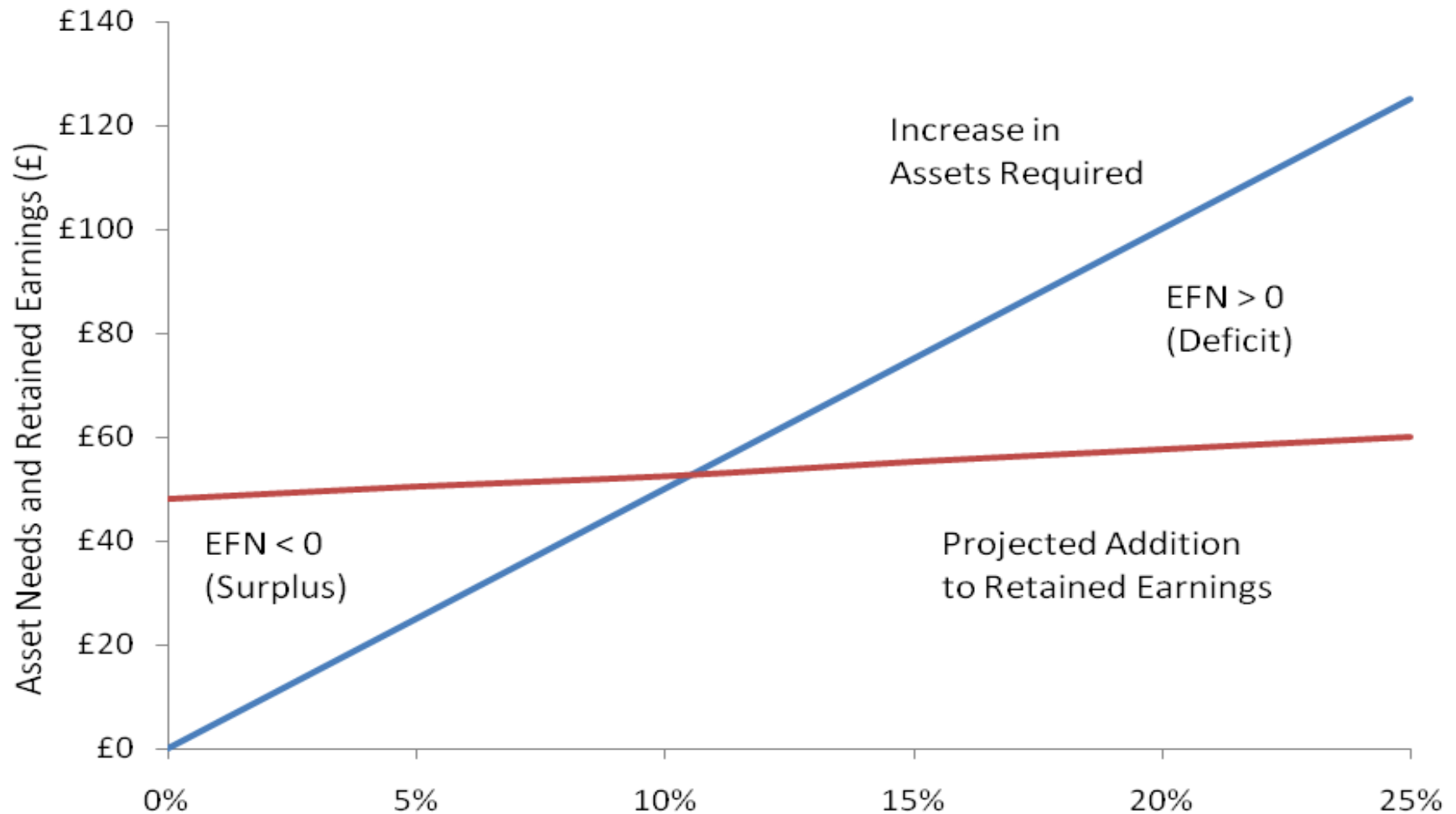
Assets			Liabilities and Owners' Equity		
	£	% Sales		£	% Sales
Current assets	£240.0	40%	Total debt	£250.0	n/a
Non-current assets	<u>360.0</u>	<u>60</u>	Owners' equity	<u>307.6</u>	<u>n/a</u>
			Fixed equity + retained earnings		
Total assets	<u>£600.0</u>	<u>100%</u>	Total liabilities and owners' equity	<u>£557.6</u>	<u>n/a</u>
			External financing needed	£42.4	n/a

Assume Paradise borrows £42.4, New D/E Ratio is $\frac{£292.4}{£307.6} = .95$ ³⁴

Growth and Projected EFN: Paradise plc

Projected Sales Growth	Increase in Assets Required	Addition to Retained Earnings	EFN	Projected Debt–Equity Ratio
0%	£ 0	£48.0	–£48.0	.68
5	25	50.4	–25.4	.75
10	50	52.4	-2.8	.82
15	75	55.2	19.8	.88
20	100	57.6	42.4	.95
25	125	60.0	65.0	1.02

Growth and Financing Requirements for Paradise plc



The Internal Growth Rate

- The internal growth rate tells us how much the firm can grow assets using retained earnings as the only source of financing

$$\text{Internal growth rate} = \frac{\text{ROA} \times b}{1 - \text{ROA} \times b}$$

With b being
the retention
rate =
retained
earnings /
net income

- Paradise plc internal growth rate

$$= \frac{.144 \times (2/3)}{1 - .144 \times (2/3)} = .1062$$

IGR = 10.62%

The Sustainable Growth Rate

- The sustainable growth rate tells us how much the firm can grow by using internally generated funds and issuing debt to maintain a constant debt ratio

$$\text{Sustainable growth rate} = \frac{\text{ROE} \times b}{1 - \text{ROE} \times b}$$

- Paradise plc sustainable growth rate

$$= \frac{.288 \times (2/3)}{1 - .288 \times (2/3)} = .2376$$

$$\text{SGR} = 23.76\%$$

Determinants of Growth

- What are the determinants of a firm's growth?
- Remember the Du Pont identity
 - The profit margin measures the firm's operating efficiency
 - The total asset turnover measures the firm's asset use efficiency
 - Financial leverage measures the firm's choice of optimal debt ratio
- Then include in your analysis the firm's dividend policy – choice of how much to pay to shareholders versus reinvesting in the firm

Sustainable growth & the Du Pont identity: meaning

- If a firm does not wish to sell new equity and its profit margin, dividend policy, financial policy and total asset turnover are all fixed, then there is only one rate of growth possible

Example: Profit Margins and Sustainable Growth

- Hage ASA has a debt–equity ratio of .5, a profit margin of 3 percent, a dividend payout ratio of 40 percent, and a capital intensity ratio of 1. What is its sustainable growth rate?
- If Hage desired a 10 percent sustainable growth rate and planned to achieve this goal by improving profit margins, what would you think?

Example: Profit Margins and Sustainable Growth

- ROE is $.03 \times 1 \times 1.5 = 4.5$ percent
- The retention ratio is $1 - .40 = .60$
- Sustainable growth is thus $.045(.60)/[1 - .045(.60)] = 2.77$ percent
- Assume that sustainable growth is equal to 10 percent, solve for profit margin, PM:
$$.10 = PM(1.5)(.6)/[1 - PM(1.5)(.6)]$$
$$PM = .1/.99 = 10.1\%$$
- For the plan to succeed, the necessary increase in profit margin is substantial, from 3 percent to about 10 percent. This may not be feasible