

FN 201 Business Finance

Lecture Note 2 Financial Analysis and Planning

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Outline

- Modifying accounting data for managerial decisions
- Common size Statement
- Financial ratio analysis
- Financial planning

Modifying accounting data for managerial decisions

- Net Operating Cash Flow
- Net Working Capital
- Net Operating Capital

Modifying accounting data for managerial decisions

: Debt vs. True Operating Performance

- Net Operating Profit After Taxes (NOPAT)

Common size Statement

= to normalize the items in financial statements with a base line for the ease of comparison and making an analysis

1. Balance Sheet – Total Asset
2. Income Statement – Sale

Common size Statement – Balance Sheet

	<u>Dec-09</u>	<u>(%)</u>	<u>Dec-08</u>	<u>(%)</u>
Assets				
Current assets:				
Cash	25	4.35	20	3.88
Marketable securities	25	4.35	0	0.00
Receivables	150	26.09	125	24.27
Inventory	125	21.74	130	25.24
Total current assets	325	56.52	275	53.40
Fixed assets:				
Property, plant, and equipment	350	60.87	320	62.14
Less accumulated depreciation	100	17.39	80	15.53
Net fixed assets	250	43.48	240	46.60
Total assets	575.0	100.00	515	100.00

Common size Statement – Balance Sheet

	<u>Dec-09</u>	<u>(%)</u>	<u>Dec-08</u>	<u>(%)</u>
Liabilities and Shareholders' Equity				
Current liabilities:				
Debt due within 1 year	0	0.00	25	4.85
Payables	135	23.48	110	21.36
Total current liabilities	135	23.48	135	26.21
Long-term debt	90	15.65	60	11.65
Shareholders' equity	350	60.87	320	62.14
Total liabilities and shareholders' equity	575	100.00	515	100.00

Common size Statement – Balance Sheet

For S&P Composite Index Firms during 2005

	Indus- trials	Paper	Oil	Chem- icals	Metals	Machinery	Pharma- ceuticals	Computers	Soft- ware	Semicon- ductors	Tele- coms	Utilities	Food	Retail
Assets:														
Cash & securities	14	5	7	6	11	12	25	26	31	43	3	2	4	12
Receivables	12	14	11	15	15	18	10	17	13	11	5	7	11	7
Inventory	9	10	4	11	14	13	9	6	1	9	1	2	11	27
Other current assets	4	2	2	3	4	5	5	6	5	4	3	7	3	3
Total current assets	39	31	23	34	43	48	49	54	49	66	12	18	28	49
Fixed assets	54	78	104	90	63	38	33	25	20	43	121	88	58	61
Depreciation	25	41	39	55	35	21	13	14	11	25	73	31	30	25
Net fixed assets	29	37	65	36	27	17	20	11	9	19	49	57	28	36
Other long-term assets	32	32	12	30	30	35	31	35	43	16	40	25	44	16
Total assets	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Liabilities:														
Short-term debt	3	5	1	6	2	5	5	2	1	1	3	5	6	2
Payables	8	8	12	7	9	7	3	13	3	9	3	4	7	16
Other current liabilities	13	11	8	10	11	12	13	19	22	11	8	10	11	13
Total current liabilities	24	24	21	23	22	24	21	34	26	21	14	19	24	31
Long-term debt	18	24	17	22	18	14	12	8	7	8	31	32	28	14
Other long-term liabilities	14	15	19	22	17	10	7	10	12	3	21	26	14	7
Equity	45	37	44	33	43	51	59	49	55	69	34	23	33	48
Total liabilities	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Common size Statement – Income Statement

	<u>Dec-09</u>	<u>(%)</u>
Sales	\$25,265	100.00
Costs of Goods Sold	<u>\$19,891</u>	<u>78.73</u>
Gross Profit	\$5,374	21.27
Cash operating expense	<u>\$2,761</u>	<u>10.93</u>
Operating Profit (EBITDA)	\$2,613	10.34
Depreciation & Amortization	\$156	0.62
Other Income (Net)	<u>\$6</u>	<u>0.02</u>
EBIT	\$2,451	9.70
Interest	<u>\$0</u>	<u>0.00</u>
EBT	\$2,451	9.70
Income Taxes	\$785	3.11
Special Charges	<u>\$194</u>	<u>0.77</u>
Net Income (EAT)	\$1,666	6.59

Common size Statement – Income Statement

For S&P Composite Index Firms during 2005

	Indus- trials	Paper	Oil	Chem- icals	Metals	Machinery	Pharma- ceuticals	Computers	Soft- ware	Semicon- ductors	Tele- coms	Utilities	Food	Retail
Revenues	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Costs	79.1	83.4	63.0	81.1	84.2	83.2	68.9	84.1	77.6	73.6	60.9	76.5	82.7	90.1
Depreciation	5.5	4.9	10.3	5.9	3.4	3.7	6.3	3.5	5.1	7.1	18.4	9.1	3.9	2.3
EBIT	15.4	11.7	26.7	13.0	12.4	13.0	24.8	12.4	17.3	19.2	20.7	14.4	13.4	7.5
Interest	2.0	2.0	3.0	2.0	1.2	1.2	1.1	0.7	0.5	0.5	6.2	6.8	2.0	0.6
Nonoperating income & special items	0.0	-0.3	-0.1	-0.9	-0.3	0.4	-1.2	0.1	0.6	0.2	0.8	2.7	0.0	0.2
Pretax income	13.4	9.3	23.6	10.1	11.0	12.2	22.5	11.8	20.3	18.9	15.2	10.2	11.4	7.1
Tax	4.4	2.5	8.6	3.0	2.8	3.3	6.5	3.2	6.8	5.2	5.1	3.3	3.5	2.4
Minority interests	0.1	0.1	0.1	0.2	0.5	0.0	0.2	0.0	0.1	-0.1	0.5	-0.2	0.1	0.0
Net income	8.9	6.7	14.9	6.9	7.7	8.8	15.8	8.5	13.4	13.8	9.5	7.0	7.8	4.7

Financial Ratio Analysis

1. Liquidity Ratio (or Short-Term Solvency Ratio)
2. Activity Ratio
3. Leverage Ratio
4. Profitability Ratio
5. Market Value Ratio

Financial Ratio Analysis – 1. Liquidity Ratio

- Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}}$
- Quick Ratio $= \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$
(Acid-Test Ratio)
- Cash Ratio $= \frac{\text{Cash}}{\text{Current Liabilities}}$

Financial Ratio Analysis – 2. Activity Ratio

- Account receivable turnover = $\frac{\text{Sale}}{\text{Account Receivable}}$
- Account receivable days / Collection period / Days sales outstanding

$$= \frac{365 \text{ days (for 1 year)}}{\text{Account Receivable Turnover}} = \frac{\text{Account Receivable}}{\text{Sale per Day}}$$
- Inventory turnover = $\frac{\text{Cost of Goods Sold}}{\text{Inventory}}$
- Inventory days = $\frac{365 \text{ days (for 1 year)}}{\text{Inventory Turnover}} = \frac{\text{Inventory}}{\text{Cost of Goods Sold per day}}$

Financial Ratio Analysis – 2. Activity Ratio

- Accounts payable turnover =
$$\frac{\text{Cost of Goods Sold}}{\text{Account Payable}}$$
- Accounts payable days =
$$\frac{365 \text{ days (for 1 year)}}{\text{Account Payable Turnover}}$$

=
$$\frac{\text{Account Payable}}{\text{Cost of Goods Sold per day}}$$

Financial Ratio Analysis – 2. Activity Ratio

Asset Utilization Ratios

- Fixed asset turnover = $\frac{\text{Sale}}{\text{Fixed Assets}}$
- Total asset turnover = $\frac{\text{Sale}}{\text{Total Asset}}$
- Capital intensity ratio = $\frac{\text{Total Asset}}{\text{Sale}}$

Financial Ratio Analysis – 3. Leverage Ratio

- Proprietary ratio $= \frac{\text{Equity}}{\text{Total Asset}}$
- Equity multiplier ratio $= \frac{\text{Total Asset}}{\text{Equity}}$
- Total debt ratio $= \frac{\text{Total Debt}}{\text{Total Asset}}$
- Debt to equity ratio $= \frac{\text{Total Debt}}{\text{Equity}}$

Financial Ratio Analysis – 3. Leverage Ratio

- Long-term debt to total capitalization ratio

$$= \frac{\text{Long-term Debt}}{\text{Long-term Debt} + \text{Equity}}$$

- Interest coverage ratio / Time-interest earned

$$= \frac{\text{Operating Profit}}{\text{Interest Expense}}$$

- Cash flow coverage ratio

$$= \frac{\text{Operating Profit} + \text{Rent Expense} + \text{Depreciation}}{\text{Interest Expense} + \text{Rent Expense} + \text{Preferred Stock Dividend}/(1 - \text{Tax Rate})}$$

Financial Ratio Analysis – 4. Profitability Ratio

- Gross profit margin (%) = $\frac{\text{Gross Profit}}{\text{Sale}}$
- Operating profit margin (%) = $\frac{\text{Operating Profit}}{\text{Sale}}$
- Net profit margin (%) = $\frac{\text{Net Profit}}{\text{Sale}}$

Financial Ratio Analysis – 4. Profitability Ratio

DuPont Analysis - A breakdown of ROE and ROA into component ratios

- Return on asset: ROA (%) =
$$\frac{\text{Net Profit}}{\text{Total Asset}}$$

=

- Return on Equity: ROE (%) =
$$\frac{\text{Net Profit}}{\text{Equity}}$$

=

Financial Ratio Analysis – 5. Market Value Ratio

$$\bullet \text{ Earning per Share (EPS)} = \frac{\text{Net Profit}}{\text{Number of Common Stocks}}$$

$$\bullet \text{ Price / Earning ratio (P/E ratio)} = \frac{\text{Market Price per Share}}{\text{Earning per Share}}$$

Note: $\text{E/P ratio} = \text{Return on Investment}$

$$\bullet \text{ Price / Book ratio (P/BV ratio)} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

$$\bullet \text{ Dividend yield (\%)} = \frac{\text{Expected Dividend per Share}}{\text{Market Price per Share}}$$

Other necessary information

1. One key customer
2. One key product
3. Single supplier
4. Percentage of sale from overseas business
5. Competition
6. Research and Development (R&D)
7. Law and regulations

Comparison / benchmark

1. Trend analysis
2. Industry average
3. Target
4. Leading / Benchmarking company
5. Competitor

Limitation

1. Benchmarking company / industry
2. Inflation rate
3. Seasonal characteristics
4. Accounting policy – inventory, depreciation
5. Window dressing
6. Industrial average vs. Industrial leader

Financial Planning

Scenario Analysis

1. Best case
2. Normal growth
3. Retrenchment

* Note: Sensitivity Analysis

Financial Planning Models

Latest and Proforma Income Statements

	2005	2006	2010
Revenue	2,200.0	2,640.0	5,474.0
Costs (90% of revenue)	1,980.0	2,376.0	4,927.0
Depreciation (10% of fixed assets)	53.3	55.0	114.0
EBIT	166.7	209.0	433.4
Interest (10% of LT debt)	42.5	45.0	131.3
Tax (40% of pretax profit)	49.7	65.6	120.8
Net Income	74.5	98.4	181.2
Operating cash flow	127.8	153.4	295.3

Financial Planning Models

Latest and Proforma Statement of Cash Flows

	<u>2005</u>	<u>2006</u>	<u>2010</u>
Increase in NWC (NWC=20% of revenues)	38.5	88	182.5
Investment in fixed assets (FA=25% of revenues)	70.5	165	342.1
Dividends (60% of net income)	44.7	59	108.7
Total uses of funds	152.8	312	633.4
External capital required (Uses-operating CF)	25	158.6	338.1

Financial Planning Models

Latest and Proforma Statement of Balance Sheet

	<u>2005</u>	<u>2006</u>	<u>2010</u>
Net working capital (20% of revenues)	440.0	528.0	1,095.0
Net fixed assets (25% of revenues)	550.0	660.0	1,369.0
Total net assets	990.0	1,188.0	2,463.0
Long-term debt	450.0	608.6	1,651.0
Equity	540.0	579.4	812.0
Total long-term liabilities and equity	990.0	1,188.0	2,463.0

Growth and Retained Earnings

$$\begin{aligned}\text{Internal growth rate} &= \frac{\text{retained earnings}}{\text{net assets}} \\ &= 3.98\%\end{aligned}$$

$$\begin{aligned}\text{Internal growth rate} &= \frac{\text{retained earnings}}{\text{net income}} \times \frac{\text{net income}}{\text{equity}} \times \frac{\text{equity}}{\text{assets}} \\ &= \text{plowback ratio} \times \text{return on equity} \times \frac{\text{equity}}{\text{net assets}} \\ &= 0.40 \times 0.1822 \times 0.5455 \\ &= .0398 \text{ or } 3.98\%\end{aligned}$$

Question?