



Gatton
COLLEGE OF BUSINESS & ECONOMICS
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Chapter 3

Finance 300
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Topics

1. Statement of cash flows
2. Standardized Financial statements
3. Ratios
4. Dupont Identity
5. Benchmarking
6. Issues with analyzing financial statements

Sources and uses of cash

Rule: An increase in left side or decrease in right side is a use of cash.

PRUFROCK CORPORATION 2014 and 2015 Balance Sheets (\$ in millions)			
	2014	2015	Change
Assets			
Current assets			
Cash	\$ 84	\$ 98	+\$ 14
Accounts receivable	165	188	+ 23
Inventory	393	422	+ 29
Total	\$ 642	\$ 708	+\$ 66
Fixed assets			
Net plant and equipment	\$2,731	\$2,880	+\$149
Total assets	\$3,373	\$3,588	+\$215
Liabilities and Owners' Equity			
Current liabilities			
Accounts payable	\$ 312	\$ 344	+\$ 32
Notes payable	231	196	- 35
Total	\$ 543	\$ 540	-\$ 3
Long-term debt	\$ 531	\$ 457	-\$ 74
Owners' equity			
Common stock and paid-in surplus	\$ 500	\$ 550	+\$ 50
Retained earnings	1,799	2,041	+ 242
Total	\$2,299	\$2,591	+\$292
Total liabilities and owners' equity	\$3,373	\$3,588	+\$215

Statement of Cash Flows

Summarizes the firm's sources and uses of cash over a specified period.

PRUFROCK CORPORATION 2015 Statement of Cash Flows (\$ in millions)	
Cash, beginning of year	\$ 84
Operating activity	
Net income	\$363
Plus:	
Depreciation	276
Increase in accounts payable	32
Less:	
Increase in accounts receivable	– 23
Increase in inventory	– 29
Net cash from operating activity	\$619
Investment activity	
Fixed asset acquisitions	–\$425
Net cash from investment activity	–\$425
Financing activity	
Decrease in notes payable	–\$ 35
Decrease in long-term debt	– 74
Dividends paid	– 121
Increase in common stock	50
Net cash from financing activity	–\$180
Net increase in cash	\$ 14
Cash, end of year	\$ 98

Standardized Financial Statement

1. Common Size Statement

PRUFROCK CORPORATION 2014 and 2015 Balance Sheets (\$ in millions)			
	2014	2015	Change
Assets			
Current assets			
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Accounts receivable	165	188	+ 23
Inventory	393	422	+ 29
Total	<u>\$ 642</u>	<u>\$ 708</u>	<u>+\$ 66</u>
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Common stock and paid-in surplus	\$ 500	\$ 550	+\$ 50
Retained earnings	1,799	2,041	+ 242
Total	<u>\$2,299</u>	<u>\$2,591</u>	<u>+\$292</u>
Total liabilities and owners' equity	<u>\$3,373</u>	<u>\$3,588</u>	<u>+\$215</u>

PRUFROCK CORPORATION Common-Size Balance Sheets 2014 and 2015			
	2014	2015	Change
Assets			
Current assets			
Cash	2.5%	2.7%	+ .2%
Accounts receivable	4.9	5.2	+ .3
Inventory	11.7	11.8	+ .1
Total	<u>19.1</u>	<u>19.7</u>	<u>+ .7</u>
Fixed assets			
Net plant and equipment	<u>80.9</u>	<u>80.3</u>	<u>-.7</u>
Total assets	<u>100.0%</u>	<u>100.0%</u>	<u>.0</u>
Liabilities and Owners' Equity			
Current liabilities			
Accounts payable	9.2%	9.6%	+ .3%
Notes payable	6.8	5.5	-1.4
Total	<u>16.0</u>	<u>15.1</u>	<u>-1.0</u>
Long-term debt	<u>15.7</u>	<u>12.7</u>	<u>-3.0</u>
Owners' equity			
Common stock and paid-in surplus	14.8	15.3	+ .5
Retained earnings	53.3	56.9	+3.6
Total	<u>68.1</u>	<u>72.2</u>	<u>+4.1</u>
Total liabilities and owners' equity	<u>100.0%</u>	<u>100.0%</u>	<u>.0</u>

Common size (cont'd)

PRUFROCK CORPORATION 2015 Income Statement (\$ in millions)	
Sales	\$2,311
Cost of goods sold	1,344
Depreciation	<u>276</u>
Earnings before interest and taxes	\$ 691
Interest paid	<u>141</u>
Taxable income	\$ 550
Taxes (34%)	<u>187</u>
Net income	<u><u>\$ 363</u></u>
Dividends	\$121
Addition to retained earnings	242

PRUFROCK CORPORATION 2015 Common-Size Income Statement	
Sales	100.0%
Cost of goods sold	58.2
Depreciation	<u>11.9</u>
Earnings before interest and taxes	29.9
Interest paid	<u>6.1</u>
Taxable income	23.8
Taxes (34%)	<u>8.1</u>
Net income	<u><u>15.7%</u></u>
Dividends	5.2%
Addition to retained earnings	10.5

Standardized Financial Statement

2. Common base year – present relative to a base year

PRUFROCK CORPORATION Summary of Standardized Balance Sheets (Asset Side Only)						
	Assets (\$ in millions)		Common-Size Assets		Common-Base Year Assets	Combined Common-Size and Base Year Assets
	2014	2015	2014	2015	2015	2015
Current assets						
Cash	\$ 84	\$ 98	2.5%	2.7%	1.17	1.08
Accounts receivable	165	188	4.9	5.2	1.14	1.06
Inventory	393	422	11.7	11.8	1.07	1.01
Total current assets	\$ 642	\$ 708	19.1	19.7	1.10	1.03
Fixed assets						
Net plant and equipment	\$2,731	\$2,880	80.9	80.3	1.05	.99
Total assets	\$3,373	\$3,588	100.0%	100.0%	1.06	1.00

Ratio Analysis

Why study ratios?

Gets around size problem! (it divides out)

There are A LOT of financial ratios (CFA exam has 40!)

Note: Not all ratios created from same data.

What I want you to take away?

It is trivial to calculate ratios, I want you to understand what the ratios mean (Interpret them!!!)

Terms

EBIT: Earnings before interest and taxes

EBITD: Earnings before interest, taxes, and depreciation

EBITD: Earnings before interest, taxes, depreciation, and amortization

Amortization: Non cash deduction (similar to depreciation) ; applies to intangible asset

Market cap: Shares outstanding x share price

Note: Years sometimes calculated as 360 days.

(USE 365 UNLESS TOLD OTHERWISE)

Calculating Financial ratios



Average vs end of year

- If concerned about the past use average figures:

$$\frac{\textit{Beginning value} + \textit{Ending value}}{2}$$

- Concerned with future use end of year
- End of year values more common

TABLE 3.8 Common Financial Ratios

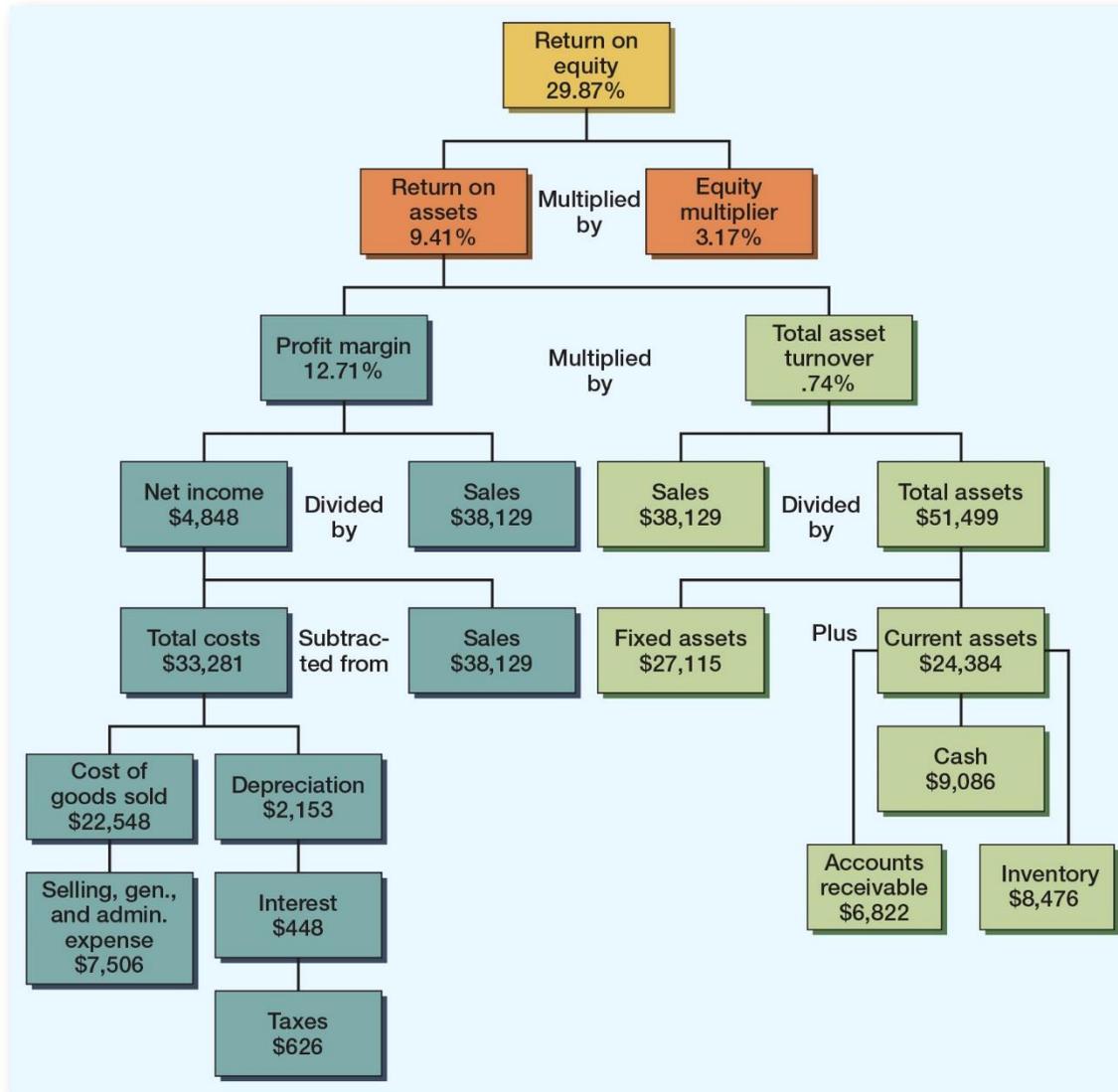
I. Short-term solvency, or liquidity, ratios	II. Long-term solvency, or financial leverage, ratios
Current ratio = $\frac{\text{Current assets}}{\text{Current liabilities}}$	Total debt ratio = $\frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}}$
Quick ratio = $\frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$	Debt–equity ratio = Total debt/Total equity
Cash ratio = $\frac{\text{Cash}}{\text{Current liabilities}}$	Equity multiplier = Total assets/Total equity
Net working capital to total assets = $\frac{\text{Net working capital}}{\text{Total assets}}$	Long-term debt ratio = $\frac{\text{Long-term debt}}{\text{Long-term debt} + \text{Total equity}}$
Interval measure = $\frac{\text{Current assets}}{\text{Average daily operating costs}}$	Times interest earned ratio = $\frac{\text{EBIT}}{\text{Interest}}$
	Cash coverage ratio = $\frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}}$
III. Asset management, or turnover, ratios	IV. Profitability ratios
Inventory turnover = $\frac{\text{Cost of goods sold}}{\text{Inventory}}$	Profit margin = $\frac{\text{Net income}}{\text{Sales}}$
Days' sales in inventory = $\frac{365 \text{ days}}{\text{Inventory turnover}}$	Return on assets (ROA) = $\frac{\text{Net income}}{\text{Total assets}}$
Receivables turnover = $\frac{\text{Sales}}{\text{Accounts receivable}}$	Return on equity (ROE) = $\frac{\text{Net income}}{\text{Total equity}}$
Days' sales in receivables = $\frac{365 \text{ days}}{\text{Receivables turnover}}$	ROE = $\frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$
NWC turnover = $\frac{\text{Sales}}{\text{NWC}}$	V. Market value ratios
Fixed asset turnover = $\frac{\text{Sales}}{\text{Net fixed assets}}$	Price–earnings ratio = $\frac{\text{Price per share}}{\text{Earnings per share}}$
Total asset turnover = $\frac{\text{Sales}}{\text{Total assets}}$	PEG ratio = $\frac{\text{Price–earnings ratio}}{\text{Earnings growth rate (\%)}}$
	Price–sales ratio = $\frac{\text{Price per share}}{\text{Sales per share}}$
	Market-to-book-ratio = $\frac{\text{Market value per share}}{\text{Book value per share}}$
	Tobin's Q ratio = $\frac{\text{Market value of assets}}{\text{Replacement cost of assets}}$
	Enterprise value–EBITDA ratio = $\frac{\text{Enterprise value}}{\text{EBITDA}}$

Dupont Identity

- Named after Dupont corporation
- Difference between ROA and ROE reflects use of financial leverage (debt financing)
- Decompose ROE into component parts

	ROE		Profit margin		Total asset turnover		Equity multiplier
Yahoo!							
2013	10.4%	=	29.2%	×	.279	×	1.29
2012	8.0	=	23.4	×	.292	×	1.17
2011	8.4	=	21.0	×	.368	×	1.18
Google							
2013	14.8%	=	21.6%	×	.539	×	1.27
2012	15.0	=	21.5	×	.535	×	1.31
2011	16.7	=	25.7	×	.522	×	1.25

FIGURE 3.1 Extended DuPont Chart for DuPont



Why are we analyzing financial statements?

- Look at accounting data because...

Market value is difficult to get

- Analysis and ratios give us comparison tool

Internal vs external uses

Benchmarking

- How do we choose a standard comparison group?
 1. Time-trend analysis
 2. Peer group analysis

SIC codes



Issues and concerns

- No underlying theory
 - What is the right Current ratio??
- Conglomerates make benchmarking difficult
- Globalization
- Different accounting procedures (Ex. Inventory)
- Different fiscal years and seasonality
- Unusual or transient events (one time asset sale)