Investment Redux
Ratio Analysis

Presented by:

Lauren Rudd

LVERudd@aol.com
Tel: 941-706-3449
www.RuddReport.com

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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

Financial Statements

PRUFROCK CORPORATION
2006 and 2007 Balance Sheets
($ in millions)

	2006	2007	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

PRUFROCK CORPORATION
2007 Sources and Uses of Cash
($ in millions)

Cash, beginning of year	$ 84
Sources of cash	
Operations:	
Net income	$363
Depreciation	276
	$639
Working capital:	
Increase in accounts payable	$ 32
Long-term financing:	
Increase in common stock	50
Total sources of cash	$721
Uses of cash	
Working capital:	
Increase in accounts receivable	$ 23
Increase in inventory	29
Decrease in notes payable	35
Long-term financing:	
Decrease in long-term debt	74
Fixed asset acquisitions	425
Dividends paid	121
Total uses of cash	$707
Net addition to cash	$ 14
Cash, end of year	$ 98

PRUFROCK CORPORATION
2007 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

PRUFROCK CORPORATION
2007 Income Statement
($ in millions)

Sales		$2,311
Cost of goods sold		1,344
Depreciation		276
Earnings before interest and taxes		$ 691
Interest paid		141
Taxable income		$ 550
Taxes (34%)		187
Net income		$ 363
Dividends	$121	
Addition to retained earnings	242	

Computing Liquidity Ratios

- Current Ratio = CA / CL
  - 708 / 540 = 1.31 times
- Quick Ratio = (CA – Inventory) / CL
  - (708 – 422) / 540 = .53 times
- Cash Ratio = Cash / CL
  - 98 / 540 = .18 times

Computing Leverage Ratios

- Total Debt Ratio = (TA – TE) / TA
  - (3588 – 2591) / 3588 = 28%
- Debt/Equity = TD / TE
  - (3588 – 2591) / 2591 = 38.5%
- Equity Multiplier = TA / TE = 1 + D/E
  - 1 + .385 = 1.385

Computing Coverage Ratios

- Times Interest Earned = EBIT / Interest
  - 691 / 141 = 4.9 times
- Cash Coverage = (EBIT + Depreciation + Amortization) / Interest
  - (691 + 276) / 141 = 6.9 times

Computing Inventory Ratios

- Inventory Turnover = Cost of Goods Sold / Inventory
    - 1344 / 422 = 3.2 times
- Days' Sales in Inventory = 365 / Inventory Turnover
    - 365 / 3.2 = 114 days

Computing Receivables Ratios

- Receivables Turnover = Sales / Accounts Receivable
  - 2311 / 188 = 12.3 times
- Days' Sales in Receivables = 365 / Receivables Turnover
  - 365 / 12.3 = 30 days

Computing Total Asset Turnover

- Total Asset Turnover = Sales / Total Assets
  - 2311 / 3588 = .64 times
  - It is not unusual for TAT < 1, especially if a firm has a large amount of fixed assets.

Computing Profitability Measures

- Profit Margin = Net Income / Sales
  - 363 / 2311 = 15.7%
- Return on Assets (ROA) = Net Income / Total Assets
  - 363 / 3588 = 10.1%
- Return on Equity (ROE) = Net Income / Total Equity
  - 363 / 2591 = 14.0%
- EBITDA Margin = EBITDA / Sales
  - 967 / 2311 = 41.8%

DuPont Identity

$$\mathrm{ROE} = \frac{\text{Net profit}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

Assets / Equ
ratio

Computing Market Value Measures

- Market Capitalization = \$88 per share x 33 million shares = 2904 million
- PE Ratio = Price per share / Earnings per share
  - 88 / 11 = 8 times
- Market-to-book ratio = market value per share / book value per share
  - 88 / (2591 / 33) = 1.12 times
- Enterprise Value (EV) = Market capitalization + Market value of interest bearing debt - cash
  - 2904 + (196 + 457) - 98 = 3465
- EV Multiple = EV / EBITDA
  - 3465 / 967 = 3.6 times

Using Financial Statements

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