UNIVERSITY OF CALGARY
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Investments & Portfolio Management

Analysis of Financial Statements

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Firms release financial data on a regular basis, notably to comply with the reporting requirements imposed to publicly-listed firms by regulators.

- Once a year, under the form of an annual report and an annual filing with the regulator;
- Quarterly, via a press release and a quarterly filing with the regulator;
- On an ad-hoc basis, when a material event comply a firm to do so;

It is also common practice for management to hold an 'analyst call' quarterly, basically a conference call with financial analysts to answer their questions regarding the just-released financial information. This critical feedback allows analysts to fine-tune their forecast models of the firm. Such calls can now be listened live by investors (without being allowed to ask questions) or afterwards, as the calls are recorded and recordings made available online.

That stream of information from management is quite important as it still constitutes the bulk of the relevant information available to analysts and investors for their valuation of firms.

A vast body of knowledge has been developed over the years for analyzing financial data published by firms. It is also used by banks to analyze private firms, by others like private equity funds, etc., and even by firms themselves to benchmark their performance.

- Well-trained and experienced analysts understand the fundamental difference between the accounting reality depicted by financial statements, and the economic reality of the firm. Accounting numbers help understand the economic reality of the firm, but only the economic reality matters for investors (i.e. the current and future ability of the firm to generate sustainable cash flows while managing risks in a reasonable manner).
- Accounting standards allow for some latitude regarding how management 'implement' them. But such choices have to be explained in the notes to the financial statements. Serious financial analysis focuses on detecting how such choices have changed over time withing a firm (or not) and how they differ between similar firms being analyzed (or not). The analyst then decide, as a first analytical stage, to correct (or not) the reported figures to make them comparable across time for a given firm or across different firms.
- Most financial data is reported in levels. This is difficult to understand and interpret. So, it is common practice to transform such data in ratios, trends, etc. or to standardize it.

Financial Statement Analysis Framework ('à la CFA')

1. Articulate the purpose and context of the analysis
   - Notably a list of specific questions.
2. Collect input data
   - Supplement financial statement data with industry/economic data, discussions with management, suppliers, customers and competitors, site visits and questionnaires/surveys.
3. Process data (notably adjust financial statements)
4. Analyze/interpret the processed data
5. Communication conclusions and recommendations
   - Have the specific questions been answered?
6. Follow-up

The Financial Statements

Balance Sheet (Statement of Financial Position)

- Financial position of the firm in term of assets and liabilities

Income Statement (plus the Statement of Comprehensive Income)

- Financial performance of the firm in term of revenue, expenses and net income

Cash Flow Statement

- Disclose the sources and uses of cash (operating, investing and financing)

Statement of Changes in Equity

- Report changes in shareholder's investment in the firm

Financial Notes and Supplementary Schedules

- 'Provide information that is essential to understanding the information provided in the primary statements.'

Consolidated Balance Sheet for Home Depot (2016)

Assets	$ Million	Percent of Total Assets	Liabilities and Shareholders' Equity	$ Million	Percent of Total Assets
Current assets			Current liabilities		
Cash and marketable securities	$ 2,216	5.2%	Debt due for repayment	427	1.0%
Receivables	1,890	4.4	Accounts payable	10,533	24.8
Inventories	11,809	27.8	Other current liabilities	1,566	3.7
Other current assets	1,078	2.5	Total current liabilities	$12,526	29.4%
Total current assets	$16,993	39.9%			
Fixed assets			Long-term debt	$20,888	49.1%
Tangible fixed assets			Other long-term liabilities	1,965	4.6
Property, plant, and equipment	$22,191	52.2%	Deferred long-term liability charges	854	0
Other long-term assets	1,263	3.0	Total liabilities	$36,233	85.2%
Total tangible fixed assets	$23,454	55.1%	Shareholders' equity		
Intangible fixed assets			Common stock and other paid-in capital	−$24,657	−57.9%
Goodwill	$ 2,102	4.9%	Retained earnings	30,973	72.8%
Total fixed assets	$25,556	60.1%	Total shareholders' equity	$ 6,316	14.8%
Total assets	$42,549	100.0%	Total liabilities and shareholders' equity	$42,549	100.0%

Consolidated Statement of Income for Home Depot (2016)

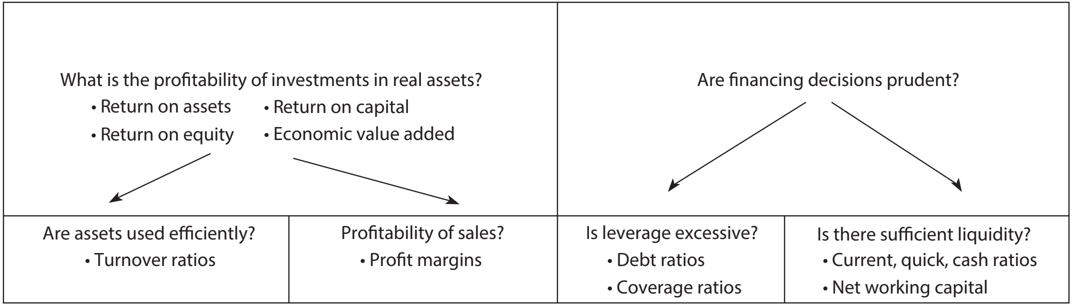
	$ Million	Percent of Revenue
Operating revenues		
Net sales	$88,519	100.0%
Operating expenses		
Cost of goods sold	$58,254	65.8%
Selling, general, and administrative expenses	14,938	16.9
Other	1,690	1.9
Depreciation	1,863	2.1
Total operating expenses	$76,745	86.7%
Earnings before interest and income taxes	$11,774	13.3%
Interest expense	752	0.8
Taxable income	$11,022	12.5%
Taxes	4,012	4.5
Net income	$ 7,010	7.9%
Allocation of net income		
Dividends	$ 3,031	3.4%
Addition to retained earnings	$ 3,979	4.5%

Statement of Cash Flows for Home Depot (2016)

	$ Million
Cash provided by operations	
Net income	$ 7,009
Adjustments to net income	
Depreciation	1,863
Changes in working capital	
Decrease (increase) in receivables	(181)
Decrease (increase) in inventories	(546)
Increase (decrease) in other current liabilities	1,151
Changes due to other operating activities	77
Total adjustments	$ 2,364
Cash provided by operations	$ 9,373
Cash flows from investments	
Gross investment in tangible fixed assets	$(3,126)
Investments in other assets	44
Cash provided by (used for) investments	$(2,982)
Cash provided by (used for) financing activities	
Additions to (reductions in) long-term debt	$ 4,012
Net issues (repurchases of) shares	(6,772)
Dividends	(3,031)
Other	4
Cash provided by (used for) financing activities	$(5,787)
Net increase in cash	$ 604

The key financial metrics are the return on assets (ROA), the return on capital (ROC), and the return on equity (ROE). ROE is key, since being the key driver of growth: $g = ROE \times b$.

$$ROA = \frac{EBIT}{Total\ Assets} \qquad ROC = \frac{EBIT}{Long-term\ Capital} \qquad ROE = \frac{Net\ Income}{Shareholders'\ Equity}$$



Dupont analysis (a decomposition of the ROE)

The ROE can be decomposed in five drivers. The influence of each on the evolution of ROE can be analyzed, one year to the next for a given firm, or differences among various firms being researched.

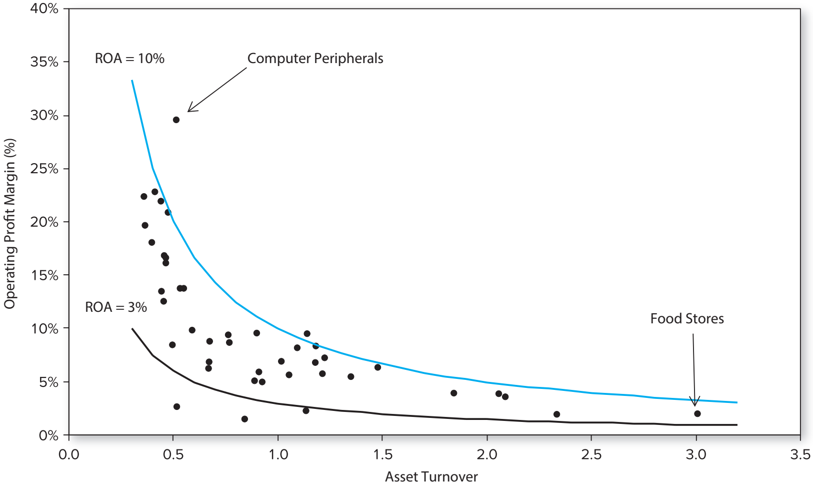
$$ROE = \frac{Net\ Profit}{Equity} = \frac{Net\ Profit}{Pretax\ Profit} \times \frac{Pretax\ Profit}{EBIT} \times \frac{EBIT}{Sales} \times \frac{Sales}{Assets} \times \frac{Assets}{Equity}$$

$$ROE = Tax\ Burden \times Interest\ Burden \times Margin \times Turnover \times Leverage$$

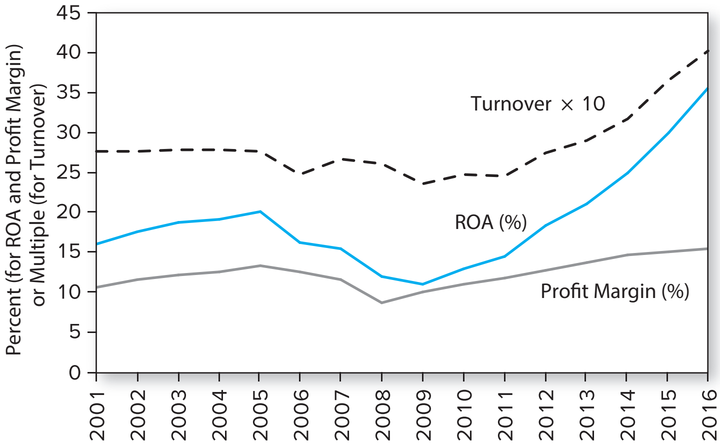
$$ROA = \frac{EBIT}{Sales} \times \frac{Sales}{Assets} \leftrightarrow ROE = \frac{Net\ Profit}{Equity} = \frac{Net\ Profit}{Pretax\ Profit} \times \frac{Pretax\ Profit}{EBIT} \times ROA \times \frac{Assets}{Equity}$$

- Of note, margin and turnover typically work opposite to each other for a producer or retailer in a competitive marketplace (i.e. increasing your margin might decrease your sales).

Operating profit margin and asset turnover for 45 industries (2015)



DuPont decomposition for Home Depot



Leverage	
Interest burden	$\dfrac{\text{EBIT} - \text{Interest Expense}}{\text{EBIT}}$
Interest coverage (times interest earned)	$\dfrac{\text{EBIT}}{\text{Interest expense}}$
Leverage	$\dfrac{\text{Assets}}{\text{Equity}} = 1 + \dfrac{\text{Debt}}{\text{Equity}}$
Compound leverage factor	Interest burden $\times$ Leverage

Asset Utilization Ratios

Asset utilization	
Total asset turnover	$\frac{\text{Sales}}{\text{Average total assets}}$
Fixed asset turnover	$\frac{\text{Sales}}{\text{Average fixed assets}}$
Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Average inventories}}$
Days sales in receivables	$\frac{\text{Average accounts receivable}}{\text{Annual sales}} \times 365$

Liquidity Ratios

Liquidity	
Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$
Quick ratio	$\frac{\text{Cash} + \text{Marketable securities} + \text{Receivables}}{\text{Current liabilities}}$
Cash ratio	$\frac{\text{Cash} + \text{Marketable securities}}{\text{Current liabilities}}$

Profitability Ratios

Profitability	
Return on assets	$\dfrac{\text{EBIT}}{\text{Average total assets}}$
Return on equity	$\dfrac{\text{Net income}}{\text{Average stockholders' equity}}$
Return on sales (profit margin)	$\dfrac{\text{EBIT}}{\text{Sales}}$

Valuation	
Market-to-book	$\dfrac{\text{Price per share}}{\text{Book value per share}}$
Price–earnings ratio	$\dfrac{\text{Price per share}}{\text{Earnings per share}}$
Earnings yield	$\dfrac{\text{Earnings per share}}{\text{Price per share}}$

Learning Objectives covered

- L01 to L04

Concept checks

- Concept checks 1 to 4 (solutions provided at the end of the chapter).

Exercises

- Suggest solving 19-8, 19-CFA3, and 19-CFA5 (c).

19-9 Solution

Leverage ratio	2.2
Total asset turnover	2.0
Net proofit margin	5.50%
Dividend payout ratio	31.80%

ROE = Net profit margin X Asset turnover X Leverage ratio = 24.20%

19-CFA3 Solution

CF from operating activities	
Cash collected from customers	$260
Cash payment to merchandise suppliers	-$85
Csh payment for interest	-$12
Cash payment for salaries	-$35
	$128

CF from investing activities	
Purchase of land	-$8
Sale of equipment	$30
Purchase of equipment	-$40
	-$18

CF from financing activities	
Retirement of common stock	-$32
Payments of dividends	-$37
	-$69

19-CFA5 (c) Solution

	Net Profits	Equity	ROE	EPS	Dividends	Retention	Growth
Eastover	394	3,864	10.20%	1.87	1.20	35.83%	3.65%
Southamptom	91	1,167	7.80%	2.46	1.04	57.72%	4.50%

The sustainable growth rates derived in this manner are not likely to be representative of future growth because 2017 was probably not a “normal” year. For Eastover, earnings had not yet recovered to 2014–2015 levels; earnings retention of only 36% seems low for a company in a capital intensive industry. Southampton’s earnings fell by over 50 percent in 2016 and its earnings retention will probably be higher than 58% in the future. There is a danger, therefore, in basing a projection on one year’s results, especially for companies in a cyclical industry such as forest products.