

CHAPTER SEVEN

Business Activities and Financial Statements

Concept Questions

C7.1 Free cash flow is a dividend from the operating activities to the financing activities; that is, it is the net cash payoff from operations that is disposed of in the financing activities. The operations generate value then “distribute” some of the value in the free cash flow dividend, leaving the remainder of the value generated reinvested in net operating assets.

Think of a firm without any debt; in this case, $C - I = d$, that is, the free cash flow is the dividend to shareholders.

C7.2 Refer to the cash conservation equation: the firm must buy debt, by buying down to its own financial obligations or by buying others' debt as a financial asset.

C7.3 The firm borrows: $C - I = d + F$. So, if $C - I = 0$, then the firm borrows to pay the dividend such that $d + F = 0$.

C7.4 An operating asset is used to produce goods or services to sell to customers in operations. A financing asset is used for storing excess cash to be reinvested in operations, pay off debt, or pay dividends.

C7.5 An operating liability is an obligation incurred in producing goods and services for customers. A financial liability is an obligation incurred in raising cash to finance operations.

C7.6 True. From the reformulated balance sheets and income statement,

$C-I = OI - \Delta NOA$. So, with operating income identified in a reformulated income statement and successive net operating assets identified in a reformulated balance sheet, free cash flow drops out.

C7.7 Operations drive free cash flow. Specifically, value is added in operations through operating earnings, and free cash flow is the residual after some of this value is reinvested in net operating assets.

C7.8 Free cash flow (driven by operations) drives dividends. But dividends are the residual of free cash flow after servicing the interest and principal claims of debt or investing in net financial assets.

C7.9 Net operating assets are increased by earnings from operations and reduced by free cash flow. Expanding, net operating assets are increased by operating revenues and cash investment and reduced by operating expenses and cash from operations.

C7.10 Net financial obligations are increased by the obligation to pay interest, and by dividends, and are reduced by free cash flow.

C7.11 True. Free cash flow is a dividend from the net operating assets to the net financial obligations. So, as $\Delta CSE = \Delta NOA - \Delta NFO$, free cash flow does not affect CSE.

Exercises

E7.1 Free Cash Flow, Dividends, Debt Financing, and Growth in net Operating

Assets

$$(a) \quad F = C - I - d \quad (\text{cash conservation equation})$$

$$= \$143 - 49$$

$$= \$94 \text{ million}$$

$$(b) \quad C - I = OI - \Delta NOA \quad (\text{free cash flow driver equation})$$

$$\text{So, } \Delta NOA = OI - (C - I)$$

$$= \$281 - 143$$

$$= \$138 \text{ million}$$

$$(c) \quad \text{Operating accruals} = OI - C$$

$$= \$281 - 239$$

$$= \$42 \text{ million}$$

OR

$$\text{Operating accruals} = \Delta NOA - \text{Cash investment}$$

$$\text{Cash investments} = C - (C - I)$$

$$= \$239 - 143$$

$$= \$96 \text{ million}$$

$$\text{So, operating accruals} = \$138 - 96$$

$$= \$42 \text{ million}$$

E7.2 Using Accounting Relations

The reformulated balance sheet:

<u>Equity</u>		<u>Net Operating Assets</u>		<u>Net Financial Obligations and</u>	
		<u>1995</u>	<u>1994</u>		<u>1995</u>
<u>1994</u>					
Operating assets	205.3	189.9	Financial liabilities	120.4	
120.4					
Operating liabilities	<u>40.6</u>	<u>34.2</u>	Financial assets	<u>45.7</u>	
<u>42.0</u>					
			NFO	74.7	
78.4			CSE	<u>90.0</u>	
<u>77.3</u>					
NOA	<u>164.7</u>	<u>155.7</u>			<u>164.7</u>
<u>155.7</u>					

$$\begin{aligned}
 \text{(a) Dividends} &= \text{Net income} - \Delta \text{CSE} && \text{(Clean-surplus equation)} \\
 &= 1.9
 \end{aligned}$$

(These are net dividends)

$$\begin{aligned}
 \text{(b) } C - I &= OI - \Delta \text{NOA} \\
 &= 21.7 - 9.0 \\
 &= 12.7
 \end{aligned}$$

$$\begin{aligned}
 \text{(c) } \text{RNOA}_t &= OI_t / \frac{1}{2} (\text{NOA}_t + \text{NOA}_{t-1}) \\
 &= 21.7 / 160.2 \\
 &= 13.55\%
 \end{aligned}$$

$$\begin{aligned}
 \text{(d) } \text{NBC} &= \text{Net interest} / \frac{1}{2} (\text{NFO}_t + \text{NFO}_{t-1}) \\
 &= 7.1 / 76.55 \\
 &= 9.27\%
 \end{aligned}$$

E7.3 Using Accounting Relations

(a)

Income Statement:

Start with the income statement where the answers are more obvious:

$$A = \$9,162$$

$$B = 8,312$$

$$C = 94$$

(Comprehensive income = operating revenues – operating expenses – net financial expenses)

Balance sheet:

$$D = 4,457$$

$$E = 34,262$$

$$F = 34,262$$

$$G = 7,194$$

$$H = 18,544$$

Before going to the cash flow statement, reformulate the balance sheet into net operating assets (NOA) and net financial obligations (NFO):

	<u>2000</u>	<u>1999</u>		<u>2001</u>	<u>1999</u>
Operating expenses	28,631	30,024	Financial obligations	7,424	6,971
Operating liabilities	<u>7,194</u>	<u>8,747</u>	Financial assets	<u>4,457</u>	<u>4,238</u>
			Net financial obligations	2,967	2,733
			Common equity	<u>18,470</u>	<u>18,544</u>
Net operating assets	<u>21,437</u>	<u>21,277</u>		<u>21,437</u>	<u>21,277</u>

Cash Flow Statement:

Free cash flow:	J = 690	[C - I = OI - ΔNOA]
Cash investment:	I = (106) (a liquidation)	[I = C - (C - I)]
Total financing flows:	M = 690	[C - I = d + F]
Net dividends:	K = 865	[Net dividends = Earnings - ΔCSE]

Payments on net debt: $L = (175)$ $[F = d + F - d]$
(more net debt issued)

(b)

Operating accruals can be calculated in two ways:

1. Operating accruals = Operating income – Cash from operations

$$= 850 - 584$$

$$= 266$$

2. Operating accruals = ΔNOA – Investment

$$= 160 - (-106)$$

$$= 266$$

(c) ΔNFO = $NFE - (C - I) + d$

$$= 59 - 690 + 865$$

$$= 234$$

(d) The net dividend of \$865 was generated as follows:

Operating income	850
less ΔNOA	<u>160</u>
Free cash flow	690
less net financial expenses	<u>59</u>
	631
plus increase in net debt	<u>234</u>
	<u>865</u>

E7.4 Inferences Using Accounting Relations

(a)

This firm has no financial assets or financial obligations so $CSE = NOA$ and
total earnings = OI. Also the dividend equals free cash flow ($C - I = d$).

	<u>1995</u>	<u>1996</u>
Price	224	238
CSE (apply P/B ratio to price)	140	119
Free cash flow		8.4
Dividend ($d = C - I$)		8.4
Price + dividend		246.4
Return ($246.4 - 224$)		22.4
Rate of return		10%

(b)

There are three ways of getting the earnings:

$$\begin{aligned}
 1. \quad \text{Earnings} &= \text{Stock return} - \Delta \text{ premium} \\
 &= 22.4 - (119 - 84) \\
 &= (12.6) \quad (\text{a loss})
 \end{aligned}$$

$$\begin{aligned}
 2. \quad \text{OI} &= C - I + \Delta \text{NOA} \\
 &= 8.4 + (119 - 140) \\
 &= (12.6)
 \end{aligned}$$

$$\begin{aligned}
 &(\text{Earnings} = \text{OI as there are no financial items}) \\
 3. \quad \text{Earnings} &= \Delta \text{CSE} + \text{dividend} \\
 &= -21 + 8.4 \\
 &= (12.6)
 \end{aligned}$$

E7.5

This is a self-guiding exercise. The book's web page will help the student.



Minicases

M7.1 Accounting Relations, Forecasting, and Valuation: Nike Inc.

This case introduces the student to pro forma analysis and valuation and shows how the analysis of firms' activities in this chapter helps. As the student develops the pro forma, he realizes that certain items must be forecasted but other items – such as free cash flows and dividends – are obtained by applying accounting relations in the chapter.

First develop the pro forma, then attempt to value the equity from forecasts in the pro forma.

The Pro Forma

To value Nike using dividend discount techniques, DCF techniques, residual earnings techniques, and abnormal earnings growth valuation, develop forecasts of dividends, free cash flows, earnings and book values:



		1995A	1996E	1997E	1998E	1999E
	Operating assets	2,947	3,191	3,722	4,360	5,128
	Operating liabilities	739	629	757	909	1091
1.	NOA	<u>2,208</u>	<u>2,562</u>	<u>2,965</u>	<u>3,451</u>	<u>4,037</u>
	Financial assets	196	358	574	836	1,160
	Financial liabilities	440	501	599	716	858
2.	NFO	<u>244</u>	<u>143</u>	<u>25</u>	<u>(120)</u>	<u>(302)</u>
3.	CSE	<u>1,964</u>	<u>2,419</u>	<u>2,940</u>	<u>3,571</u>	<u>4,339</u>
4.	OI		574	635	709	725
5.	Net financial expense (NFE)		15	9	2	(7)
6.	Earnings		559	626	707	732
	ΔNOA		354	403	486	586
7.	Free cash flow		220	232	223	139
	ΔCSE		455	521	631	768
8.	Net dividends		104	105	76	(36)
9.	ROCE (on beginning CSE)			28.5%	25.9%	24.0%
	20.5%					

The calculations for each line in the pro forma:

1. NOA = Operating assets – operating liabilities
 2. NFO = Financial liabilities – financial assets
 3. CSE = NOA – NFO
 4. OI = Beginning-of-year NOA x RNOA
 5. NFE = Beginning-of-year NFO x 6.0%
 6. Earnings = OI – NFE
 7. C - I = OI - ΔNOA
 8. Net dividends = Earnings - ΔCSE
- Also, net dividends = ΔNFO + (C - I) – NFE

The Valuations

The valuations are developed from the forecasts of dividends and free cash flow, and from forecasts of residual earnings based on forecasts of earnings and book values. Note that the forecasts of dividends and free cash flows “drop out” using accounting relations once the forecast of their drivers are made: one can’t forecast these without getting to their drivers, and the reformatting identifies the drivers.

Dividend discount valuation

This involves discounting forecasted dividends at the equity cost of capital. But the terminal value in 1999 is clearly a problem here as the pro forma indicates that share issues are required, that is, the net payout will be negative. Use the example to reinforce the difficulties of using dividend discounting. Nike is reducing dividends by building up financial assets, but investment in financial assets (cash in the firm rather than cash in the shareholders’ pockets) – and thus the amount of dividends -- has not much bearing on the value that comes from operations.

Discounted cash flow valuation

With positive forecasted free cash flows, this type of valuation looks feasible: discount the forecasted cash flow to present value. But what of the continuing value? Will free cash flow declining after 1999, like it does in 1999? Will it grow?

Use the example to reinforce issues with DCF valuation. Free cash flow is forecasted to decline in 1998 and 1999 even though operating income is increasing. The reason is that investment in operating assets is increasing ($C - I = OI - \Delta NOA$) in order to generate even more cash flow in the future. Free cash flow is a perverse valuation concept.

Residual earnings valuation

The forecasted residual earnings (using a cost of capital of 11%) are:

<u>1996E</u>	<u>1997E</u>	<u>1998E</u>	<u>1999E</u>
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Residual earnings (0.11)	343.0	359.9	383.6	339.2
Discount factor (1.11 ^t)	1.11	1.232	1.368	1.518
PV of RE	309.0	292.4	280.4	223.5

With the exception of 1998, the RE appears to be at a stable level. Suppose we forecast RE to be at \$355.0 million indefinitely after 1999. Then the RE valuation would be

Present value of all RE to 1999 \$1,105 million

$$\text{Continuing value, 1999} = \frac{355}{0.11} = 3,227$$

Present value of continuing value (3,227/1.518) 2,126

Book value of common equity, 1995 1,964

Value of the equity \$5,195 million

Value per share (for 142.89 million shares) \$36.36

(This value compares with the market price of \$39)

Clearly the continuing value calculation here has to be examined further. Specifically, an analysis of growth is required. Much of the financial statement analysis that follows in this part of the book is aimed at uncovering the growth.

Abnormal Earnings Growth Valuation

Abnormal earnings growth is always equal to the change in residual earnings (see Box 6.3 in Chapter 6). So develop the pro forma for AEG simply by taking the difference in RE:

	<u>1996E</u>	<u>1997E</u>	<u>1998E</u>	<u>1999E</u>	<u>2000E</u>
Residual earnings	343.0	359.9	383.6	339.2	355.0
Abnormal earnings growth		16.9	23.7	(44.4)	15.8

If residual earnings are expected to be constant after 1999, then abnormal earnings growth is expected to be zero after 1999. So, using AEG valuation methods, the value of the equity is:

$$V_E^{1995} = \frac{1}{0.11} \left[559 + \frac{16.9}{1.11} + \frac{23.7}{1.232} + \frac{-44.4}{1.368} + \frac{15.8}{1.518} \right] = \$5,195 \text{ million } (\$36.36 \text{ per share})$$

A discussion of some features of the pro forma:

1. The build-up of financial assets alluded to above: What will Nike do with its cash flow other than investing in financial assets?
2. There is a forecasted share issue in 1999 even though there is positive free cash flow and no debt. Has the analyst got it right? Again, what is Nike's strategy to use its cash? Should the cash be paid out in dividends? (Remember the Kerkorian-Chrysler debate in Minicase M5.3 in Chapter 5.)
3. Declining RNOA. This is typical: firms become less profitable over time as competition challenges them.
4. The high RNOA: this is typical of a brand-name firm that can maintain sales and profitability.
5. The growth in CSE: residual earnings are maintained in the presence of declining profitability because of growth. Can the growth of 21% per year for 1998 and 1999 be maintained? This question brings the continuing value calculation into focus.

6. Growth is depressing free cash flow: the forecasted free cash flow for 1999 is relatively low (4% of net operating assets). So DCF analysis is doubtful.
7. Although RNOA (and ROCE) are declining, residual earnings is remaining fairly constant because of growth in CSE: ROCE and investment growth combine to generate residual earnings.

Connecting to the Spreadsheet Tool

The Roadmap for developing an analysis and valuation spreadsheet on the web page uses Nike as an example. Use this case to introduce the spreadsheet analysis. The case also can be used to set up the Nike examples in the subsequent chapters.

