CHAPTER 12
Financial Planning and Forecasting Financial Statements

- Financial planning
- Additional Funds Needed (AFN) formula
- Pro forma financial statements
  - Sales forecasts
  - Percent of sales method

Financial Planning and Pro Forma Statements

- Three important uses:
  - Forecast the amount of external financing that will be required
  - Evaluate the impact that changes in the operating plan have on the value of the firm
  - Set appropriate targets for compensation plans

Steps in Financial Forecasting

- Forecast sales
- Project the assets needed to support sales
- Project internally generated funds
- Project outside funds needed
- Decide how to raise funds
- See effects of plan on ratios and stock price

2002 Balance Sheet (Millions of $)

Cash & sec.	$ 20	Accts. pay. & accruals	$ 100
Accounts rec.	240	Notes payable	100
Inventories	240	Total CL	$ 200
Total CA	$ 500	L-T debt	100
		Common stk	500
Net fixed assets	500	Retained earnings	200
Total assets	$1,000	Total claims	$1,000

2002 Income Statement (Millions of $)

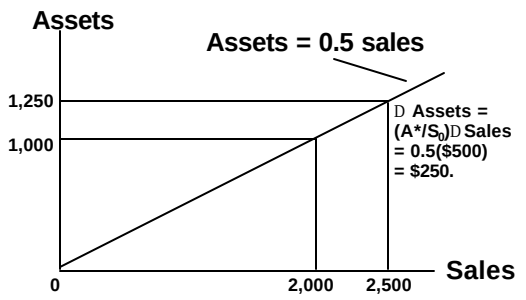
Sales	$2,000.00
Less: COGS (60%)	1,200.00
SGA costs	700.00
EBIT	$ 100.00
Interest	10.00
EBT	$ 90.00
Taxes (40%)	36.00
Net income	$ 54.00
Dividends (40%)	$21.60
Add'n to RE	$32.40

AFN (Additional Funds Needed): Key Assumptions

- Operating at full capacity in 2002.
- Each type of asset grows proportionally with sales.
- Payables and accruals grow proportionally with sales.
- 2002 profit margin ($54/$2,000 = 2.70%) and payout (40%) will be maintained.
- Sales are expected to increase by $500 million.

Definitions of Variables in AFN

- A^*/S_0: assets required to support sales; called capital intensity ratio.
- ΔS: increase in sales.
- L^*/S_0: spontaneous liabilities ratio
- M: profit margin (Net income/sales)
- RR: retention ratio; percent of net income not paid as dividend.



A^*/S_0 = \$1,000/\$2,000 = 0.5 = \$1,250/\$2,500.

Assets must increase by \$250 million. What is the AFN, based on the AFN equation?

$$AFN = (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR)$$

$$= (\$1{,}000/\$2{,}000)(\$500) - (\$100/\$2{,}000)(\$500) - 0.0270(\$2{,}500)(1 - 0.4)$$

$$= \$184.5 \text{ million.}$$

How would increases in these items affect the AFN?

- Higher sales:
  - Increases asset requirements, increases AFN.
- Higher dividend payout ratio:
  - Reduces funds available internally, increases AFN.

(More…)

- Higher profit margin:
  - Increases funds available internally, decreases AFN.
- Higher capital intensity ratio, A^*/S_0:
  - Increases asset requirements, increases AFN.
- Pay suppliers sooner:
  - Decreases spontaneous liabilities, increases AFN.

Projecting Pro Forma Statements with the Percent of Sales Method

- Project sales based on forecasted growth rate in sales
- Forecast some items as a percent of the forecasted sales
  - Costs
  - Cash
  - Accounts receivable

(More...)

- Items as percent of sales (Continued...)
  - Inventories
  - Net fixed assets
  - Accounts payable and accruals
- Choose other items
  - Debt
  - Dividend policy (which determines retained earnings)
  - Common stock

Sources of Financing Needed to Support Asset Requirements

- Given the previous assumptions and choices, we can estimate:
  - Required assets to support sales
  - Specified sources of financing
- Additional funds needed (AFN) is:
  - Required assets minus specified sources of financing

Implications of AFN

- If AFN is positive, then you must secure additional financing.
- If AFN is negative, then you have more financing than is needed.
  - Pay off debt.
  - Buy back stock.
  - Buy short-term investments.

How to Forecast Interest Expense

- Interest expense is actually based on the daily balance of debt during the year.
- There are three ways to approximate interest expense. Base it on:
  - Debt at end of year
  - Debt at beginning of year
  - Average of beginning and ending debt

More...

A Solution that Balances Accuracy and Complexity

- Base interest expense on beginning debt, but use a slightly higher interest rate.
  - Easy to implement
  - Reasonably accurate
- See *Ch 11 Mini Case Feedback.xls* for an example basing interest expense on average debt.

Percent of Sales: Inputs

	2002 Actual	2003 Proj.
COGS/Sales	60%	60%
SGA/Sales	35%	35%
Cash/Sales	1%	1%
Acct. rec./Sales	12%	12%
Inv./Sales	12%	12%
Net FA/Sales	25%	25%
AP & accr./Sales	5%	5%

Other Inputs

Percent growth in sales	25%
Growth factor in sales (g)	1.25
Interest rate on debt	10%
Tax rate	40%
Dividend payout rate	40%

2003 Forecasted Income Statement

	2002	Factor	2003 1st Pass
Sales	$2,000	g=1.25	$2,500.0
Less: COGS		Pct=60%	1,500.0
SGA		Pct=35%	875.0
EBIT			$125.0
Interest		0.1($Debt_{02}$)	20.0
EBT			$105.0
Taxes (40%)			42.0
Net. income			$63.0
Div. (40%)			$25.2
Add. to RE			$37.8

2003 Balance Sheet (Assets)

Forecasted assets are a percent of forecasted sales.

2003 Sales = $2,500

	Factor	2003
Cash	Pct= 1%	$25.0
Accts. rec.	Pct=12%	300.0
Inventories	Pct=12%	300.0
Total CA		$625.0
Net FA	Pct=25%	625.0
Total assets		$1,250.0

2003 Preliminary Balance Sheet (Claims)

2003 Sales = $2,500

	2002	Factor	2003 Without AFN
AP/accruals		Pct=5%	$125.0
Notes payable	100		100.0
Total CL			$225.0
L-T debt	100		100.0
Common stk.	500		500.0
Ret. earnings	200	+37.8*	237.8
Total claims			$1,062.8

*From forecasted income statement.

What are the additional funds needed (AFN)?

- Required assets = $1,250.0
- Specified sources of fin. = $1,062.8
- Forecast AFN = $ 187.2

NWC must have the assets to make forecasted sales, and so it needs an equal amount of financing. So, we must secure another $187.2 of financing.

Assumptions about How AFN Will Be Raised

- No new common stock will be issued.
- Any external funds needed will be raised as debt, 50% notes payable, and 50% L-T debt.

How will the AFN be financed?

Additional notes payable =
0.5 ($187.2) = $93.6.

Additional L-T debt =
0.5 ($187.2) = $93.6.

2003 Balance Sheet (Claims)

	w/o AFN	AFN	With AFN
AP/accruals	$ 125.0		$ 125.0
Notes payable	100.0	+93.6	193.6
Total CL	$ 225.0		$ 318.6
L-T debt	100.0	+93.6	193.6
Common stk.	500.0		500.0
Ret. earnings	237.8		237.8
Total claims	$1,071.0		$1,250.0

Equation AFN = $184.5 vs. Pro Forma AFN = $187.2. Why are they different?

- Equation method assumes a constant profit margin.
- Pro forma method is more flexible. More important, it allows different items to grow at different rates.

Forecasted Ratios

	2002	2003(E)	Industry
Profit Margin	2.70%	2.52%	4.00%
ROE	7.71%	8.54%	15.60%
DSO (days)	43.80	43.80	32.00
Inv. turnover	8.33x	8.33x	11.00x
FA turnover	4.00x	4.00x	5.00x
Debt ratio	30.00%	40.98%	36.00%
TIE	10.00x	6.25x	9.40x
Current ratio	2.50x	1.96x	3.00x

What are the forecasted free cash flow and ROIC?

	2002	2003(E)
Net operating WC (CA - AP & accruals)	$400	$500
Total operating capital (Net op. WC + net FA)	$900	$1,125
NOPAT (EBITx(1-T))	$60	$75
Less Inv. in op. capital		$225
Free cash flow		-$150
ROIC (NOPAT/Capital)		6.7%

Proposed Improvements

	Before	After
DSO (days)	43.80	32.00
Accts. rec./Sales	12.00%	8.77%
Inventory turnover	8.33x	11.00x
Inventory/Sales	12.00%	9.09%
SGA/Sales	35.00%	33.00%

Impact of Improvements (see *Ch 11 Mini Case.xls* for details)

	Before	After
AFN	$187.2	$15.7
Free cash flow	-$150.0	$33.5
ROIC (NOPAT/Capital)	6.7%	10.8%
ROE	7.7%	12.3%

Suppose in 2002 fixed assets had been operated at only 75% of capacity.

$$\text{Capacity sales} = \frac{\text{Actual sales}}{\text{\% of capacity}}$$

$$= \frac{\$2{,}000}{0.75} = \$2{,}667.$$

With the existing fixed assets, sales could be $2,667. Since sales are forecasted at only $2,500, no new fixed assets are needed.

How would the excess capacity situation affect the 2003 AFN?

- The previously projected increase in fixed assets was $125.
- Since no new fixed assets will be needed, AFN will fall by $125, to

$187.2 - $125 = $62.2.