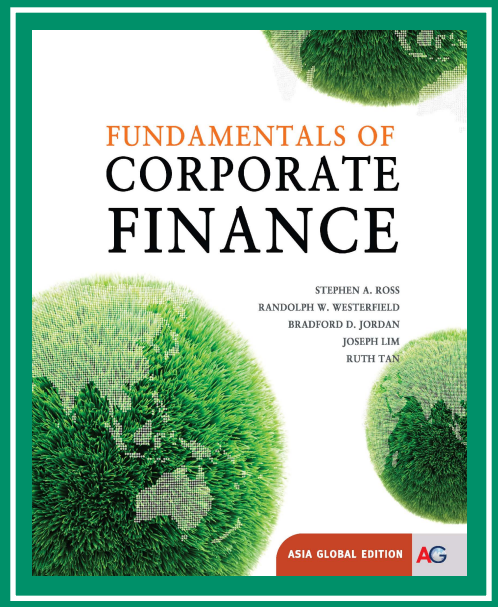

♪Chapter 4♪

♪Long-Term Financial Planning and Growth♪

Key Concepts and Skills

- Understand the financial planning process and how the following decisions are interrelated:
  - capital budgeting, capital structure, dividend policy, and working capital
- Be able to develop a financial plan using the percentage of sales approach
- Be able to compute external financing needed and identify the determinants of a firm's growth
- Understand how capital structure policy and dividend policy affect a firm's ability to grow

Chapter Outline

- What Is Financial Planning?
- Financial Planning Models: A First Look
- The Percentage of Sales Approach
- External Financing and Growth
- Some Caveats Regarding Financial Planning Models

Elements of Financial Planning

- Investment in new assets – determined by capital budgeting decisions
- Degree of financial leverage – determined by capital structure decisions
- Cash paid to shareholders – determined by dividend policy decisions
- Liquidity requirements – determined by net working capital decisions

Financial Planning Process

- Planning Horizon - divide decisions into short-run decisions (usually next 12 months) and long-run decisions (usually 2 – 5 years)
- Aggregation - combine capital budgeting decisions into one large project
- Assumptions and Scenarios
  - Make realistic assumptions about important variables
  - Run several scenarios where you vary the assumptions by reasonable amounts
  - Determine, at a minimum, worst case, normal case, and best case scenarios

Role of Financial Planning

- Helps management to see the interactions between decisions
- Gives management a systematic framework for exploring and capitalizing on its opportunities
- Helps management to avoid surprises by identifying possible outcomes and making contingency plans
- Helps management to determine if goals are feasible and internally consistent with one another

Financial Planning Model Ingredients

- Sales forecast – many cash flows depend directly on the level of sales (often estimated using sales growth rate)
- Relationship of B/S items and I/S items with sales
- Economic assumptions – explicit assumptions about the coming economic environment

Financial Planning Model Output

- The projected financial statements or pro forma statements
  - show the amount of financing needed to pay for the required assets
  - provide a projection of the internally generated funds
  - compute the plug variable (also known as external funds needed)

- Management has to decide what type of financing will be used to make the balance sheet balance

Percentage of Sales Approach

- 2 equivalent ways:
  - projected balance sheet method
  - formula method
- Note that on the balance sheet and income statements
  - Some items vary directly with sales (spontaneous accounts)
  - Some items vary but not directly with sales (non-spontaneous accounts), and
  - others do not vary with sales at all (non-spontaneous)

Spontaneous versus Non-spontaneous items

- Income Statement
  - If all the items above net profit vary directly with sales, then profit is a constant percentage of sales (profit margin is constant).
  - If all the items above net profit vary directly with sales and if the retention ratio (aka plowback ratio) is constant, then the addition to retained earnings is a constant percentage of sales.
  - If depreciation and interest expense does not vary directly with sales , then the profit margin is not constant
  - Dividends are a management decision and may not vary directly with sales. This will influence additions to retained earnings
- Balance Sheet
  - Initially assume all assets, including fixed, vary directly with sales
  - Accounts payable will vary directly with sales
  - Notes payable, long-term debt and equity generally do not vary directly with sales because they depend on management decisions about capital structure
  - The change in the retained earnings portion of equity will come from the dividend decision

Steps in Generating Pro Forma Statements

- Examine most recent B/S and I/S
  - Note the relationships to sales
- Generate pro forma I/S
  - Projected sales = current sales (1 + rate of increase)
  - For each spontaneous item, compute projected figure
  - Obtain the retained earnings to be reflected on B/S
- Generate pro forma B/S
  - for each spontaneous item, compute projected figure
- Obtain EFN

Rosengarten Corporation
Most Recent Income Statement

Sales		**$1,000**
Costs (80% of sales)		**800**
Taxable Income		**$ 200**
Taxes (34% of sales)		**68**
Net Income (13.2% of sales)		**$ 132**
Addition to retained earnings		**$ 88**
Dividends		**44**

Profit Margin = net income / sales = 132/1000 = 0.132

Dividend payout ratio = dividends / net income = 44/132 = 0.3333

Retention ratio = 1 – dividend payout ratio = 1 – 0.333 = 0.6667

Rosengarten Corporation
Most Recent Balance Sheet

Assets			**Liabilities and Owners' Equity**		
Current assets		% of sales	**Current liabilities**		% of sales
Cash	$160	16%	Accounts payable	$300	30%
Accounts receiv	440	44	Notes payable	100	n/a
Inventory	600	60		$400	n/a
	$1,200	120%			
			Long-term debt	$800	n/a
Net fixed assets	$1,800	180%			
			Owners' equity		
			Common stock	$800	n/a
			Retained earnings	1,000	n/a
Total assets	$3,000	300%	Total liab & OE	$3,000	n/a

Rosengarten Corporation Most Recent Balance Sheet (continued)

If sales increased by a dollar

- Cash increased by $0.16
- Accounts receiv increased by $0.44
- Inventory increased by $0.60
- FA increased by $1.80
- TA increased by $3.00
- Accounts payable increased by $0.30

EFN Key Assumptions

- Operating at full capacity.
- Each type of asset grows proportionally with sales.
- Payables grow proportionally with sales.
- Profit margin (13.2%) and dividend payout (33.33%) will be maintained.
- Sales are expected to increase by 25% or $250 million. ($\%\Delta S = 25\%$)

Pro Forma Income Statement

Suppose sales is projected to increase by 25%
Construct pro forma I/S

Rosengarten Corporation
Pro Forma Income Statement

Sales (projected)	$ 1,250
Costs (80 % of sales)	1,000
Taxable income	$ 250
Taxes (34%)	85
Net income (13.2% of sales)	$ 165

Pro Forma Income Statement (continued)

Assuming payout & retention ratios are constant (here, retained earnings are a constant percentage of sales)

Projected RE = retention ratio x net income
= 0.6667 x 165
= 110 (to be reflected in B/S)

Projected dividends = dividend payout ratio x net income
= 0.3333 x 165
= 55

Partial Pro Forma Balance Sheet

Projected retained earnings reflected on B/S

Rosengarten Corporation
Partial Pro Forma Balance Sheet

Assets		**Liabilities and Owners' Equity**	
Current assets		**Current liabilities**	
Cash (16% of $1,250)	$200	Accounts payable (30%)	$375
Accounts receiv (44%)	550	Notes payable (n/a)	100
Inventory (60%)	750		
	$475		$1,500
		Long-term debt (n/a)	
	$800		
Net fixed assets (180%)	$2,250		
		Owners' equity	
		Common stock (n/a)	
	$800		
		Retained earnings **(+110)**	1,110

B/S is "partial" or incomplete. The 2 sides do not balance.

What is the External Fund Needed (EFN)?

Forecasted total assets	= $3,750
Forecasted total claims	= $3,185
Forecast EFN	= $ 565

The firm must have the assets to produce forecasted sales. It has to raise $565.

The firm may choose one or a combination of the following plug variables:

- borrow more short-term
- borrow more long-term
- sell more common stock
- decrease dividend payout

How will Rosengarten Raise the EFN?

- No new common stock will be issued.
- Any external funds needed will be raised as debt.
- Assume that company decides to increase
  - Notes payable by $225
  - Long term debt by $340

Pro Forma Balance Sheet

The 2 sides "balance" now

Rosengarten Corporation
Pro Forma Balance Sheet

Assets			Liabilities and Owners' Equity		
Current assets			Current liabilities		
Cash (16% of $1,250)	$200		Accounts payable (30%)	$375	
Accounts payable (44%)	550		Notes payable **(+225)**		325
Inventory (60%)	750				
	$1,500			$475	
			Long-term debt **(+340)**		
$1,140					
Net fixed assets (180%)	$2,250				
			Owners' equity		
			Common stock (n/a)		$800
			Retained earnings **(+110)**		1,110

The Formula Method

Similar to the B/S method

EFN = required ↑ in assets - spontaneous ↑ in liabilities -↑ in retained earnings

= shortfall in the "partial" B/S

$= (A^* / S)\,\Delta S - (L^* / S)\,\Delta S - M\,S_1\,(1 - d)$

where

A*/S = assets that ↑ spontaneously /original sales

L*/S = liab that ↑ spontaneously /original sales

S = original sales

S_1 = total sales projected for next year **(based on projection)**

ΔS = change in sales **(based on projection)**

M = profit margin

d = dividend payout ratio

PS: Note that the formula method must be used with caution. In particular, check that the profit margin has not changed. If it has, use the new profit margin.

The Formula Method (continued)

EFN = required ↑ in assets - spontaneous ↑ in liabilities
-↑ in retained earnings

internally generated funds

$$EFN = (A^* / S)\,\Delta S - (L^* / S)\,\Delta S - M\,S_1\,(1 - d)$$

profit margin x new sales x RR = retained earning

$$= (3000 / 1000)250 - (300 / 1000)250 - 0.132\,(1250)(1 - 0.3333)$$

$$= 750 - 75 - 110 = \$565$$

What if EFN is negative? Excess internal funds.

Example: Operating at Less than Full Capacity

Suppose that in the most recent financial statements, Rosengarten's FA were operated at 70% instead of 100% capacity

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

$$= \frac{\$1{,}000}{0.70} = \$1{,}429$$

With the existing fixed assets, sales could increase to $1,429 before any new fixed assets are needed. Since sales are forecasted at only $1,250, no new fixed assets are needed.

Example: Operating at Less than Full Capacity (continued)

How will the excess capacity situation affect the pro forma balance sheet and the EFN?

- The previously projected increase in fixed assets was $450.
- Since no new fixed assets will be needed, EFN will fall by $450, to

$565 - $450 = $115.

Example: Operating at Less than Full Capacity (continued)

What if sales increase from $1,000 to $1,500? What will be the amount of fixed assets required?

Target ratio = FA / Capacity sales
= $1,800 / $1,429 = 1.26

With the target ratio, the amount of fixed assets required = $1,500 (1.26) = $1,890

ΔFA = $1,890 - $1,800 = $90

Work the Web Example

- Looking for estimates of company growth rates?
- What do the analysts have to say?
- Check out Yahoo Finance – enter a company ticker and follow the “Analyst Estimates” link

Growth and External Financing

- At low growth levels, internal financing (retained earnings) may exceed the required investment in assets.
- As the growth rate increases, the internal financing will not be enough and the firm will have to go to the capital markets for money
- Examining the relationship between growth and external financing required is a useful tool in long-range planning
- Discuss two growth rates that are useful for financial planning.
  - Internal growth rate
  - Sustainable growth rate

The Internal Growth Rate

- The internal growth rate tells us how much the firm can grow assets using retained earnings as the only source of financing. That is, with no external financing (EFN = 0)
- Using the information from Rosengarten's most recent financial statements
  - return on assets = ROA = NI / TA = 132 / 3000 = .044
  - retention ratio = b =0.6667

$$\text{Internal Growth Rate} = \frac{\text{ROA} \times \text{b}}{1 - \text{ROA} \times \text{b}}$$

$$= \frac{.044 \times .6667}{1 - .044 \times .6667}$$

$$= 3.02\%$$

The Sustainable Growth Rate

- The sustainable growth rate tells us how much the firm can grow by using internally generated funds and issuing debt to maintain a constant debt ratio.
- Using Rosengarten's most recent financial statements
  - return on equity = ROE = NI/Equity = 132 / 1,800 = .0733
  - b = .6667

$$\text{Sustainable Growth Rate} = \frac{\text{ROE} \times \text{b}}{1 - \text{ROE} \times \text{b}}$$

$$= \frac{.0733 \times .6667}{1 - .0733 \times .6667}$$

$$= 5.14\%$$

Determinants of Growth

- Profit margin – operating efficiency
- Total asset turnover – asset use efficiency
- Financial leverage – choice of optimal debt ratio
- Dividend policy – choice of how much to pay to shareholders versus reinvesting in the firm

Important Questions

- It is important to remember that we are working with accounting numbers; therefore, we must ask ourselves some important questions as we go through the planning process:
  - How does our plan affect the timing and risk of our cash flows?
  - Does the plan point out inconsistencies in our goals?
  - If we follow this plan, will we maximize shareholder wealth?

Quick Quiz

- What is the purpose of long-range planning?
- What are the major decision areas involved in developing a plan?
- What is the percentage of sales approach?
- How do you adjust the model when the firm is operating at less than full capacity?
- What is the internal growth rate?
- What is the sustainable growth rate?
- What are the major determinants of growth?

End of Chapter