FINANCIAL MANAGEMENT

Financial Planning

Learning Goals

Understand the financial planning process, ***including long-term (strategic) financial plans*** and ***short-term (operating) financial plans***.

Explain the simplified procedures used to prepare and evaluate the ***pro forma income statement*** and ***the pro forma balance sheet***.

Discuss the ***cash-planning process*** and the preparation, evaluation and use of the ***cash budget***.

Financial Planning

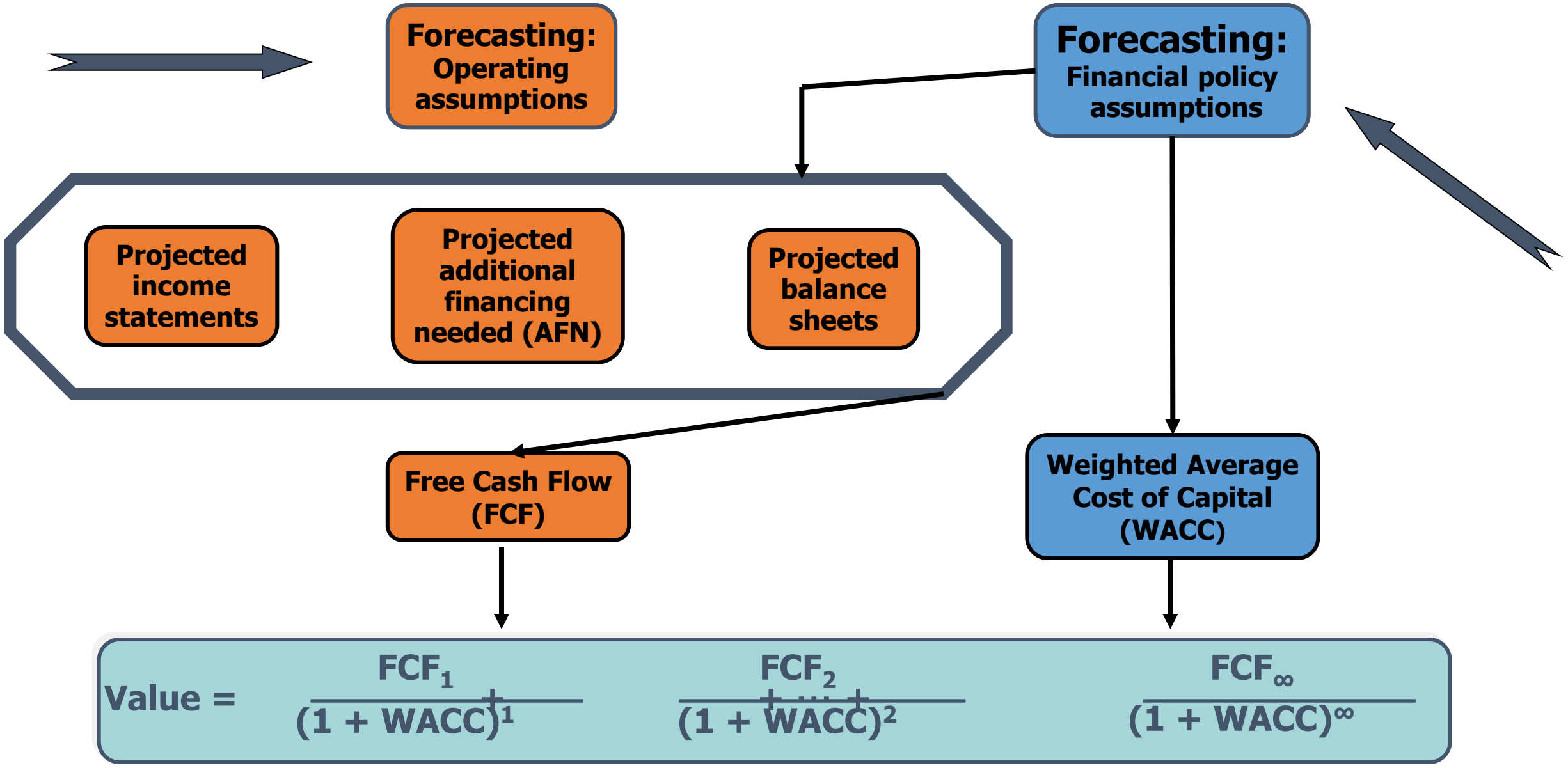
Firms plan for both the short term and the long term.

Planning Horizon

- Short-term planning: Plans for the next 12 months.

- Long-term planning: Plans that exceed the next 12 months.

Intrinsic Value: Financial Forecasting



Long Term (Strategic) Financial Plans

- Long-term (strategic) financial plans lay out a company's planned financial actions and the anticipated impact of those actions over periods ranging ***from 2 to 10 years***.
- Long-term financial plans consider a number of financial activities including:
  - *Proposed fixed asset investments*
  - *Research and development activities*
  - *Marketing and product development*
  - *Capital structure*
  - *Sources of financing*
- These plans are generally supported by a series of ***annual budgets and profit plans.***

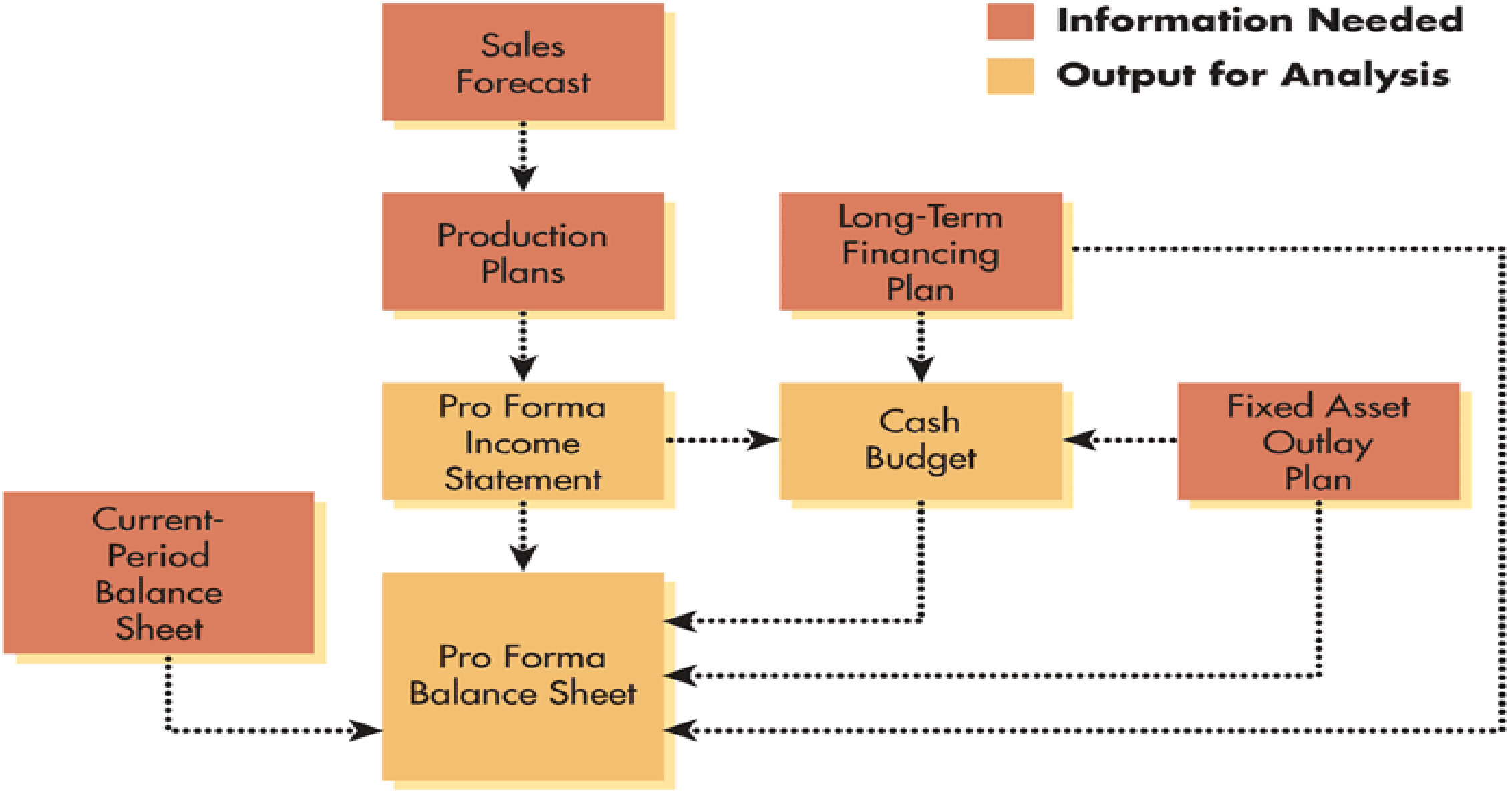
Short Term (Operating) Financial Plans

Short-term (operating) financial plans specify short-term financial actions

- ***Key inputs*** include the ***sales forecast*** and ***other operating & financial data.***

- ***Key outputs*** include ***operating budgets***, ***the cash budget***, and ***pro forma financial statements.***

Short Term (Operating) Financial Plans



The Financial Planning Process

The financial planning process ***begins with long-term, or strategic***, financial plans that ***in turn guide the formulation of short-term, or operating, plans and budgets.***

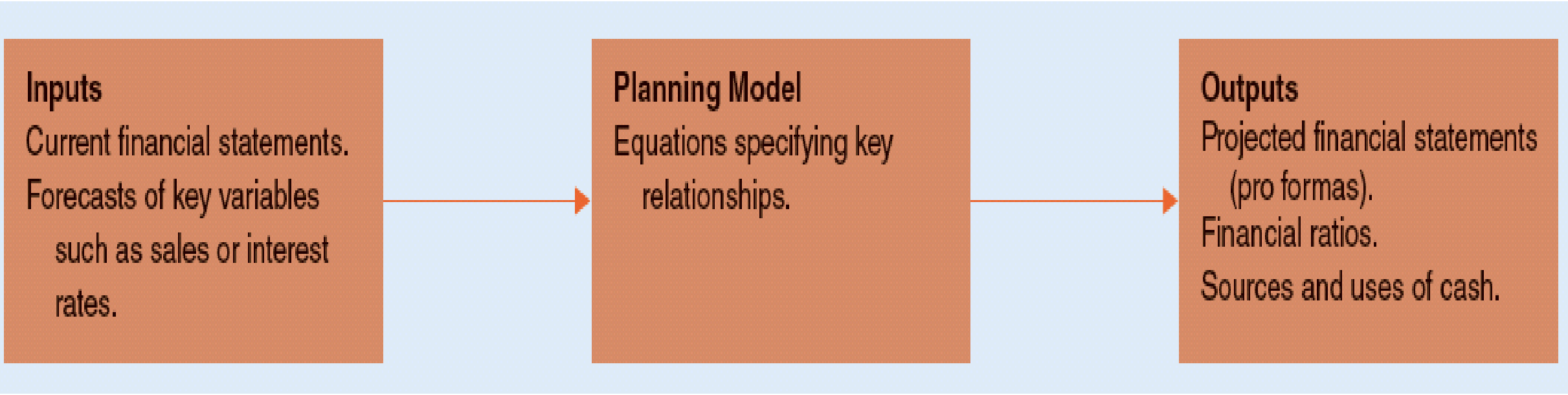
Two key aspects of financial planning are ***profit planning*** and ***cash planning.***

Profit planning involves preparation of pro forma statements.

Cash planning involves the preparation of the firm's cash budget.

The Financial Planning Model

Financial planning models help planners explore the consequences of alternative strategies.



Profit Planning: ProForma Statements

- Pro forma financial statements are ***projected,*** or ***forecasted, income statements and balance sheets.***

- The **inputs** required to develop pro forma statements using the most common approaches include:
  - *Financial statements from the preceding year*
  - *The sales forecast for the coming year*
  - *Key assumptions about a number of factors*

Vectra Inc. Income Statement Dec. 31, 2019

Sales revenue	
Model X (1,000 units at $20/unit)	$ 20,000
Model Y (2,000 units at $40/unit)	80,000
Total sales	$100,000
Less: Cost of goods sold	
Labor	$ 28,500
Material A	8,000
Material B	5,500
Overhead	38,000
Total cost of goods sold	$ 80,000
Gross profits	$ 20,000
Less: Operating expenses	10,000
Operating profits	$ 10,000
Less: Interest expense	1,000
Net profits before taxes	$ 9,000
Less: Taxes (0.15 × $9,000)	1,350
Net profits after taxes	$ 7,650
Less: Common stock dividends	4,000
To retained earnings	$ 3,650

Vectra Manufacturing's Balance Sheet, Dec. 31, 2019

Assets		Liabilities and stockholders' equity	
Cash	$ 6,000	Accounts payable	$ 7,000
Marketable securities	4,000	Taxes payable	300
Accounts receivable	13,000	Notes payable	8,300
Inventories	16,000	Other current liabilities	3,400
Total current assets	$39,000	Total current liabilities	$19,000
Net fixed assets	51,000	Long-term debt	18,000
Total assets	$90,000	Total liabilities	$37,000
		Common stock	30,000
		Retained earnings	23,000
		Total liabilities and stockholders' equity	$90,000

Profit Planning: ProForma Financial Statements

Step 1: Start with a Sales Forecast

- The previous sales forecast is based on an increase in price ***from $20 to $25 per unit for Model X*** and ***from $40 to $50 per unit for Model Y.***
- These increases are required to cover anticipated increases in various costs, including labor, materials, & overhead.

2020 Sales Forecast for Vectra Manufacturing

Unit sales		Dollar sales	
Model X	1,500	Model X ($25/unit)	$ 37,500
Model Y	1,950	Model Y ($50/unit)	97,500
		Total	$135,000

Profit Planning: ProForma Financial Statements (cont'd)

Step 2: Preparing the Pro Forma Income Statement

- A simple method for developing a pro forma income statement is the ***percent-of-sales method***.

- This method ***starts with the sales forecast*** and ***then expresses the cost of goods sold, operating expenses, interest expense, and other accounts as a percentage of projected sales.***

- Using the Vectra example, the easiest way to do this is to reorganize the historical income statement as a percentage of sales.

Profit Planning: ProForma Financial Statements (cont'd)

Step 2: Preparing the Pro Forma Income Statement (cont.)

- By using dollar values taken from Vectra's 2019 income statement, we find that these percentages are

$$\frac{\text{Cost of goods sold}}{\text{Sales}} = \frac{\$80{,}000}{\$100{,}000} = 80.0\%$$

$$\frac{\text{Operating expenses}}{\text{Sales}} = \frac{\$10{,}000}{\$100{,}000} = 10.0\%$$

$$\frac{\text{Interest expense}}{\text{Sales}} = \frac{\$1{,}000}{\$100{,}000} = 1.0\%$$

A Pro Forma Income Statement, Using the Percent-of-Sales Method, for Vectra Manufacturing for the Year Ended December 31, 2020

Sales revenue	$135,000
Less: Cost of goods sold (0.80)	108,000
Gross profits	$ 27,000
Less: Operating expenses (0.10)	13,500
Operating profits	$ 13,500
Less: Interest expense (0.01)	1,350
Net profits before taxes	$ 12,150
Less: Taxes (0.15 × $12,150)	1,823
Net profits after taxes	$ 10,327
Less: Common stock dividends	4,000
To retained earnings	$ 6,327

Profit Planning: ProForma Balance Sheet

- The ***judgmental approach*** is a simplified approach for preparing the pro forma balance sheet under which the firm estimates the values of certain balance sheet accounts and uses its external financing as a balancing.

- To apply this method to Vectra Manufacturing, a number of **simplifying assumptions** must be made.

Profit Planning: ProForma Balance Sheet (cont'd)

1. A minimum *cash balance* of $6,000 is desired.

2. *Marketable securities* will remain at their current level of $4,000.

3. *Average collection period* will be 45 days.

4. *Ending inventory* will remain at about $16,000. *25% represents raw materials and 75 % is finished goods.*

5. A *new machine costing* $20,000 will be purchased and total depreciation will be $8,000.

Profit Planning: ProForma Balance Sheet (cont'd)

6. *Purchases represents* 30 % of annual sales. Vectra takes about 73 days to pay on its accounts payable.

7. *Taxes payable* will be $455.

8. *Notes payable* will remain unchanged at $8,300.

9. There will be *no change in other current liabilities, long-term debt, and common stock.*

10. *Retained earnings will change in accordance with the pro forma income statement.*

Vectra Manufacturing's Balance Sheet, **Dec. 31, 2019**

Assets		Liabilities and stockholders' equity	
Cash	$ 6,000	Accounts payable	$ 7,000
Marketable securities	4,000	Taxes payable	300
Accounts receivable	13,000	Notes payable	8,300
Inventories	16,000	Other current liabilities	3,400
Total current assets	$39,000	Total current liabilities	$19,000
Net fixed assets	51,000	Long-term debt	18,000
Total assets	$90,000	Total liabilities	$37,000
		Common stock	30,000
		Retained earnings	23,000
		Total liabilities and stockholders' equity	$90,000

A Pro Forma Balance Sheet, Using the Judgmental Approach, for Vectra Manufacturing (**December 31, 2020**)

Assets			Liabilities and stockholders' equity	
Cash		$ 6,000	Accounts payable	$ 8,100
Marketable securities		4,000	Taxes payable	455
Accounts receivable		16,875	Notes payable	8,300
Inventories			Other current liabilities	3,400
Raw materials	$ 4,000		Total current liabilities	$ 20,255
Finished goods	12,000		Long-term debt	18,000
Total inventory		16,000	Total liabilities	$ 38,255
Total current assets		$ 42,875	Common stock	30,000
Net fixed assets		63,000	Retained earnings	29,327
Total assets		$105,875	Total	$ 97,582
			External financing required[a]	8,293
			Total liabilities and stockholders' equity	$105,875

[a]The amount of external financing needed to force the firm's balance sheet to balance. Because of the nature of the judgmental approach, the balance sheet is not expected to balance without some type of adjustment.

Evaluation of Proforma Statements

The major weaknesses of the approaches to pro forma statement development outlined above lie in two assumptions:

- That the firm's ***past financial performance will be replicated in the future***
- That certain variables (such as cash, accounts receivable, and inventories) can be forced to take on certain ***"desired"*** values.

These assumptions cannot be justified solely on the basis of their ability to simplify the calculations involved.

Evaluation of Proforma Statements (cont'd)

However pro forma statements are prepared, analysts must understand how to use them to make ***financial decisions.***

- Financial managers and lenders can use pro forma statements to analyze the ***firm's inflows and outflows of cash, as well as its liquidity, activity, debt, profitability, and market value***.
- ***Various ratios can be calculated*** from the pro forma income statement and balance sheet to evaluate performance.
- ***Cash inflows and outflows can be evaluated*** by preparing a pro forma statement of cash flows.
- After analyzing the pro forma statements, the financial manager can take steps to ***adjust planned operations to achieve short-term financial goals.***

Cash Planning: Cash Budgets

- The ***cash budget*** or ***cash forecast*** is a statement of the firm's planned inflows and outflows of cash that is used to estimate its short-term cash requirements.
- Typically, the cash budget is designed to cover a 1-year period, divided into smaller time intervals.
- The more seasonal and uncertain a firm's cash flows, the greater the number of intervals.

Cash Planning: Cash Budgets (cont'd)

- A ***sales forecast*** is a prediction of the sales activity during a given period, based on ***external and/or internal data.***

- The sales forecast is then used as a basis for estimating the monthly cash flows that will result from projected sales and from outlays related to production, inventory, and sales.

Cash Planning: Cash Budgets (cont'd)

- The sales forecast may be based on an analysis of ***external data, internal data, or a combination of the two.***
  - An ***external forecast*** is a sales forecast based on the relationships observed between the firm's sales and certain key external economic indicators.
  - An ***internal forecast*** is a sales forecast based on a buildup, or consensus, of sales forecasts through the firm's own sales channels.

The General Format of Cash Budgets

Total cash receipts

Cash sales, collection of Accounts Receivables (AR), other cash receipts

Total cash disbursements

All outlays of cash, eg cash purchase, payments, capex outlays, dividends, loan payment,..

Net cash flow

The mathematical difference between the firm's cash receipts and its cash disbursements in each period.

The General Format of Cash Budgets (cont'd)

Begining cash

Ending cash
The sum of the firm's beginning cash and its net cash flow for the period.

Minimum cash balance

Required total financing
Amount of funds needed by the firm if ***the ending cash for the period < the desired minimum cash balance (notes payable)***

Excess cash balance
The excess amount ***if the ending cash for the period > the desired minimum cash balance***

Cash Budgets: Coulson Industries

Coulson Industries, a defense contractor, is developing a cash budget for ***October, November, and December***. Coulson's sales in August and September were $100,000 and $200,000 respectively.

Sales of $400,000, $300,000 and $200,000 have been forecasted for October, November, and December. Historically, *20% of the firm's sales have been for cash*, *50% have been collected after 1 month*, and *the remaining 30% after 2 months*.

Bad-debt expenses (uncollectible accounts) have been negligible.

In December, *Coulson will receive a $30,000 dividend from stock in a subsidiary.*

A Schedule of Projected Cash Receipts for Coulson Industries ($000)

	Aug.	Sept.	Oct.	Nov.	Dec.
Sales forecast	$100	$200	$400	$300	$200
Cash sales (0.20)	$20	$40	$ 80	$ 60	$ 40
Collections of A/R:					
Lagged 1 month (0.50)		50	100	200	150
Lagged 2 months (0.30)			30	60	120
Other cash receipts					30
Total cash receipts	$20	$90	$210	$320	$340

Cash Planning: Cash Budgets
An Example: Coulson Industries (cont.)

Coulson has also gathered the relevant information for the development of a cash disbursement schedule.

Purchases will represent 70% of sales – 10% will be paid immediately in cash, 70% is paid the month following the purchase, and the *remaining 20% is paid two months following the purchase.*

The firm will also expend cash on rent (every month 5.000), wages and salaries (48.000, 38.000, 28.000) taxes (25.000 Dec.), capital assets (130.000 Nov, interest (10.000 Dec), dividends (20.000 Oct, and a portion of the principal (20.000 Dec) on its loans.

A Schedule of Projected Cash Disbursements for Coulson Industries ($000)

Purchases (0.70 × sales)	Aug. $70	Sept. $140	Oct. $280	Nov. $210	Dec. $140
Cash purchases (0.10)	$7	$14	$ 28	$ 21	$ 14
Payments of A/P:					
Lagged 1 month (0.70)		49	98	196	147
Lagged 2 months (0.20)			14	28	56
Rent payments			5	5	5
Wages and salaries			48	38	28
Tax payments					25
Fixed-asset outlays				130	
Interest payments					10
Cash dividend payments			20		
Principal payments					20
Total cash disbursements	$7	$63	$213	$418	$305

Coulson Industries

The Cash Budget for Coulson Industries can be derived by combining the receipts budget with the disbursements budget.

At the end of September, Coulson's cash balance was $50,000, notes payable was $0, and marketable securities balance was $0.

Coulson also wishes to maintain a ***minimum cash balance of $25,000.***

As a result, it ***will have excess cash of $22,000 i***n October, and a deficit of cash in November and December.

A Cash Budget for Coulson Industries ($000)

	Oct.	Nov.	Dec.
Total cash receipts[a]	$210	$ 320	$ 340
Less: Total cash disbursements[b]	213	418	305
Net cash flow	($ 3)	($ 98)	$ 35
Add: Beginning cash	50	47	(51)
Ending cash	$ 47	($ 51)	($ 16)
Less: Minimum cash balance	25	25	25
Required total financing (notes payable)[c]		$ 76	$ 41
Excess cash balance (marketable securities)[d]	$ 22		

[a]From Table 4.8.

[b]From Table 4.9.

[c]Values are placed in this line when the ending cash is less than the desired minimum cash balance. These amounts are typically financed short-term and therefore are represented by notes payable.

[d]Values are placed in this line when the ending cash is greater than the desired minimum cash balance. These amounts are typically assumed to be invested short-term and therefore are represented by marketable securities.

Evaluating Cash Budgets: Coulson Industries

Cash budgets indicate the extent to which cash shortages or surpluses are expected in the months covered by the forecast.

	End-of-month balance ($000)		
Account	Oct.	Nov.	Dec.
Cash	$25	$25	$25
Marketable securities	22	0	0
Notes payable	0	76	41

- The excess cash of $22,000 in October should be invested in marketable securities. The deficits in November and December need to be financed.

Coping with Uncertainity in the Cash Budgets

- One way to cope with cash budgeting ***uncertainty*** is to prepare several cash budgets based on several ***forecasted scenarios (e.g., pessimistic, most likely, optimistic).***
- From this range of cash flows, the financial manager can determine the amount of financing necessary to cover the most adverse situation.
- This method will also provide a sense of the ***riskiness of alternatives.***
- An example of this sort of "sensitivity analysis" for Coulson Industries is shown on the following slide.

A Scenario Analysis of Coulson Industries' Cash Budget ($000)

	October			November			December		
	Pessi-mistic	Most likely	Opti-mistic	Pessi-mistic	Most likely	Opti-mistic	Pessi-mistic	Most likely	Opti-mistic
Total cash receipts	$ 160	$210	$285	$ 210	$320	$410	$ 275	$340	$422
Less: Total cash disbursements	200	213	248	380	418	467	280	305	320
Net cash flow	($ 40)	($ 3)	$ 37	($170)	($ 98)	($ 57)	($ 5)	$ 35	$102
Add: Beginning cash	50	50	50	10	47	87	(160)	(51)	30
Ending cash	$ 10	$ 47	$ 87	($160)	($ 51)	$ 30	($165)	($ 16)	$132
Less: Minimum cash balance	25	25	25	25	25	25	25	25	25
Required total financing	$ 15			$ 185	$ 76		$ 190	$ 41	
Excess cash balance		$ 22	$ 62			$ 5			$107

Coping with Uncertainity in the Cash Budgets: Summary

October:

- Invest the $22,000 excess cash balance in marketable securities ☺

November

- Liquidate the $22,000 of marketable securities and borrow $76,000 (notes payable) ☹☹

December

- Repay $35,000 of notes payable to leave $41,000 of outstanding required total financing ☹