

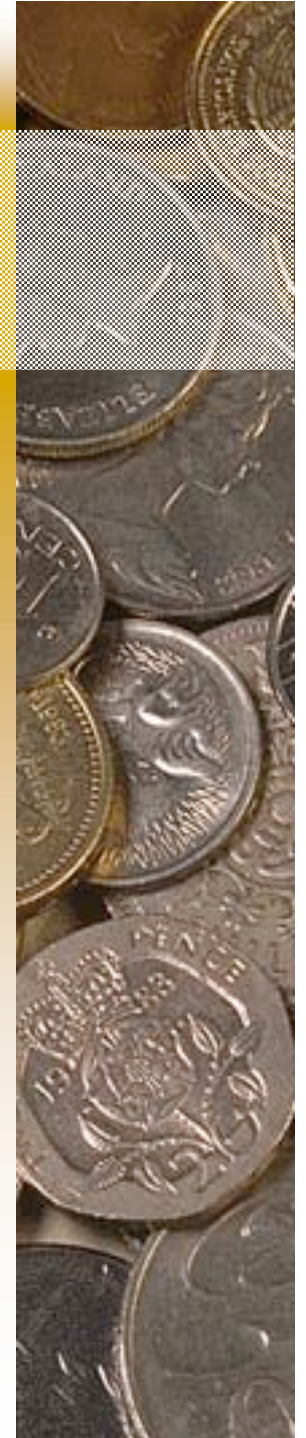


Corporate Valuation and Corporate Governance

**Corporate Valuation
Value-Based Management
Corporate Governance**

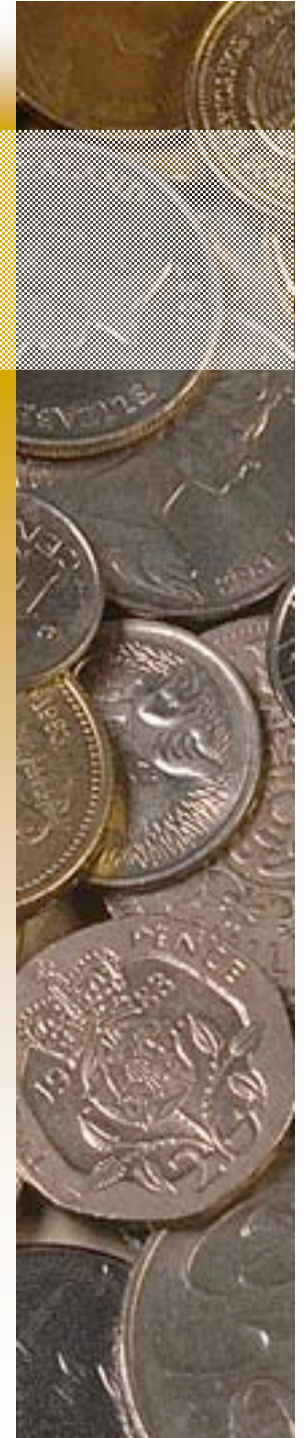
Corporate Valuation:

- **Two types of assets that a company owns.**
 - **Assets-in-place**
 - **Financial, or nonoperating, assets**



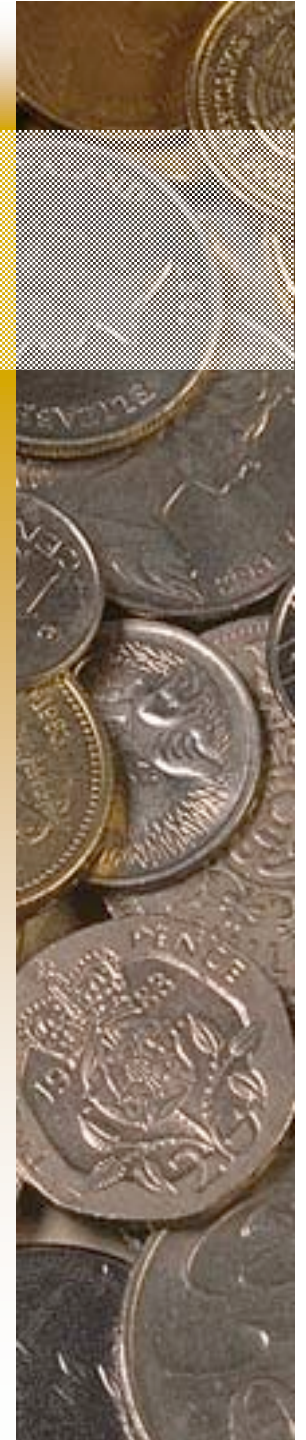
Assets-in-Place

- Assets-in-place are tangible, such as buildings, machines, inventory.
- Usually they are expected to grow.
- They generate free cash flows.
- The PV of their expected future free cash flows, discounted at the WACC, is the **value of operations**.



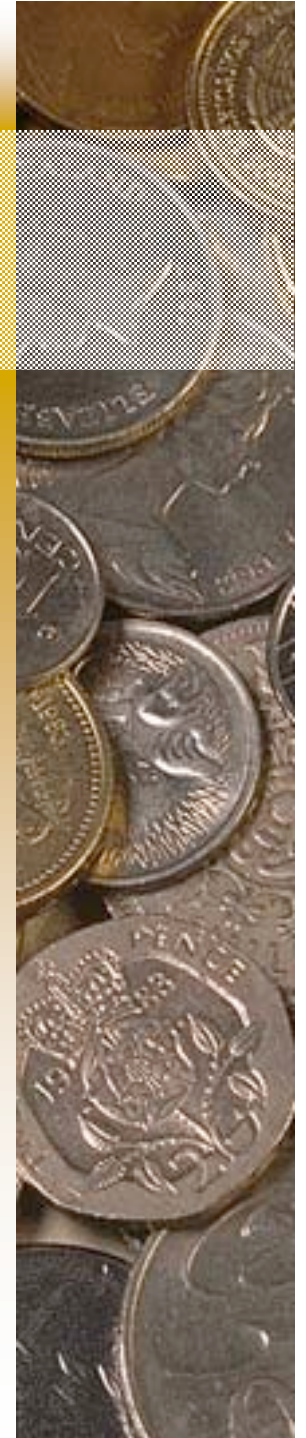
Value of Operations

$$V_{Op} = \sum_{t=1} \frac{FCF_t}{(1 + WACC)^t}$$



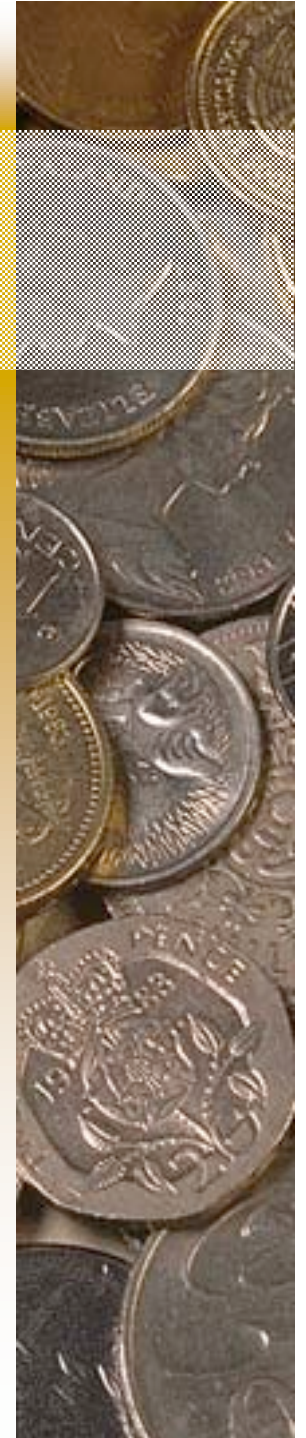
Financial, or nonoperating, assets

- **Marketable securities**
- **Ownership of non-controlling interest in another company**
- **Value of nonoperating assets usually is very close to figure that is reported on balance sheets.**



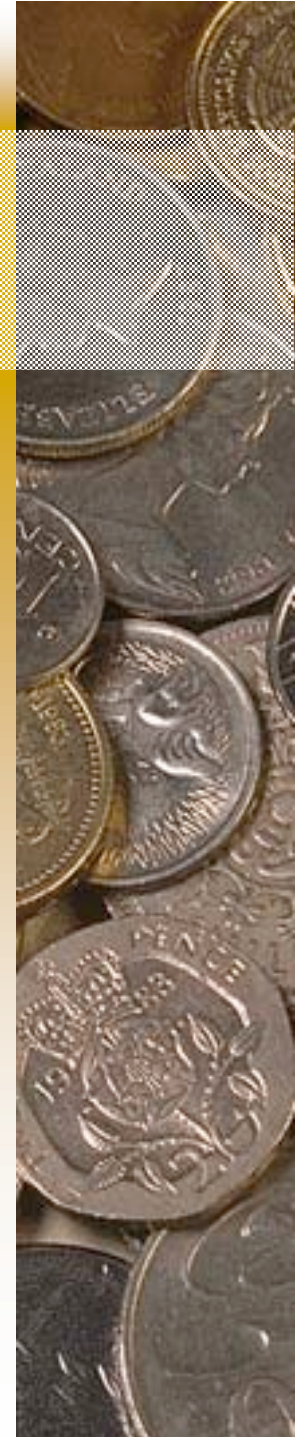
Total Corporate Value

- Total corporate value is sum of:
 - Value of operations
 - Value of nonoperating assets



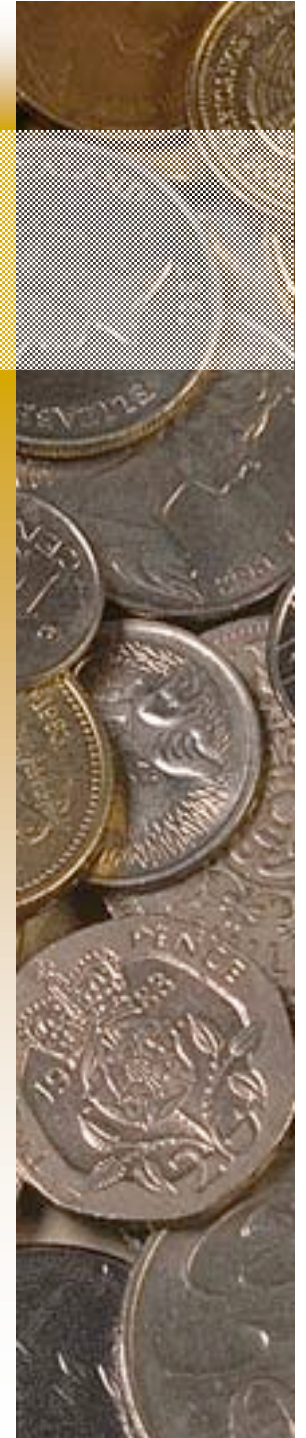
Claims on Corporate Value

- **Debtholders have first claim.**
- **Preferred stockholders have the next claim.**
- **Any remaining value belongs to stockholders.**



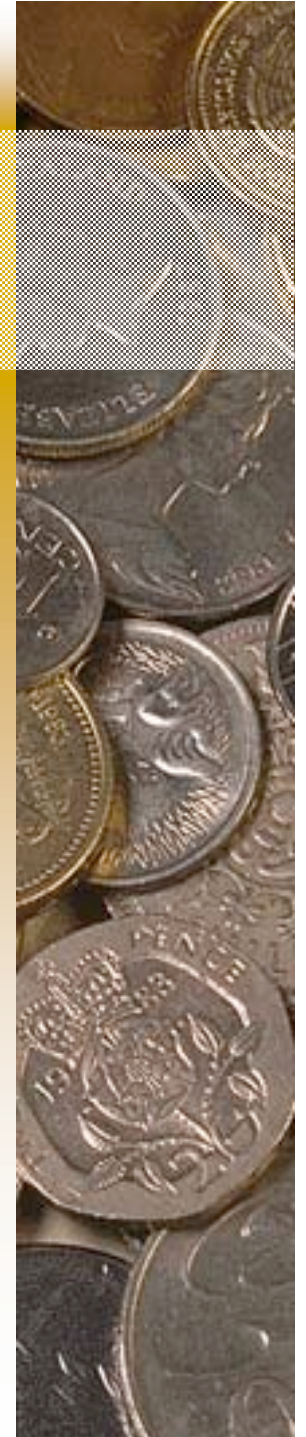
Applying the Corporate Valuation Model

- Forecast the financial statements, as shown in Chapter 14.
- Calculate the projected free cash flows.
- Model can be applied to a company that does not pay dividends, a privately held company, or a division of a company, since FCF can be calculated for each of these situations.



Data for Valuation

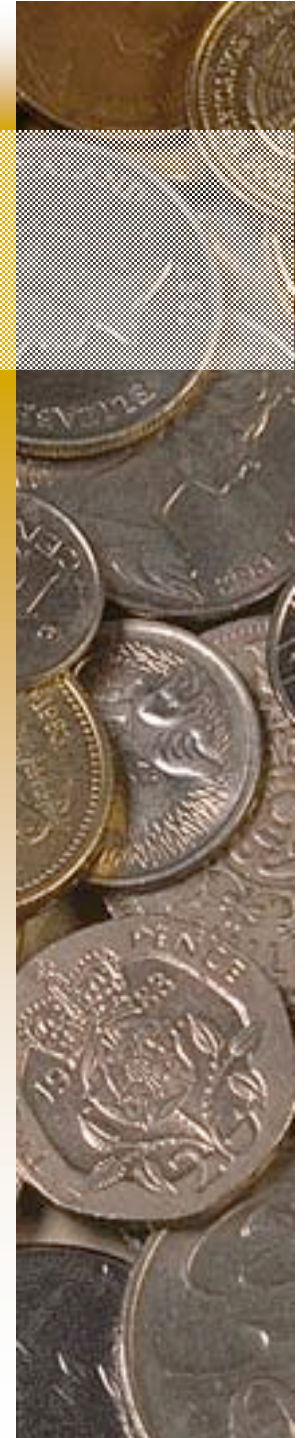
- $FCF_0 = \$20$ million
- $WACC = 10\%$
- $g = 5\%$
- Marketable securities = \$100 million
- Debt = \$200 million
- Preferred stock = \$50 million
- Book value of equity = \$210 million



Value of Operations: Constant Growth

Suppose FCF grows at rate g .

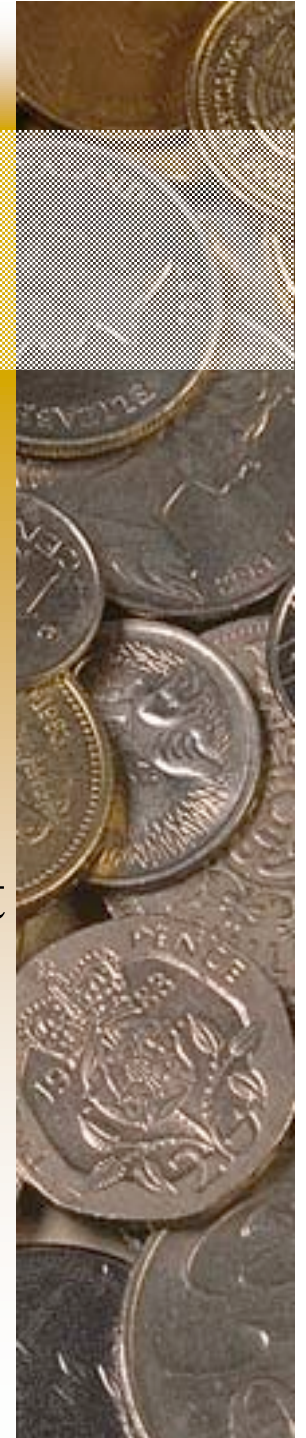
$$\begin{aligned} V_{Op} &= \sum_{t=1}^{\infty} \frac{FCF_t}{(1 + WACC)^t} \\ &= \sum_{t=1}^{\infty} \frac{FCF_0 (1 + g)^t}{(1 + WACC)^t} \end{aligned}$$



Constant Growth Formula

- Notice that the term in parentheses is less than one and gets smaller as t gets larger. As t gets very large, term approaches zero.

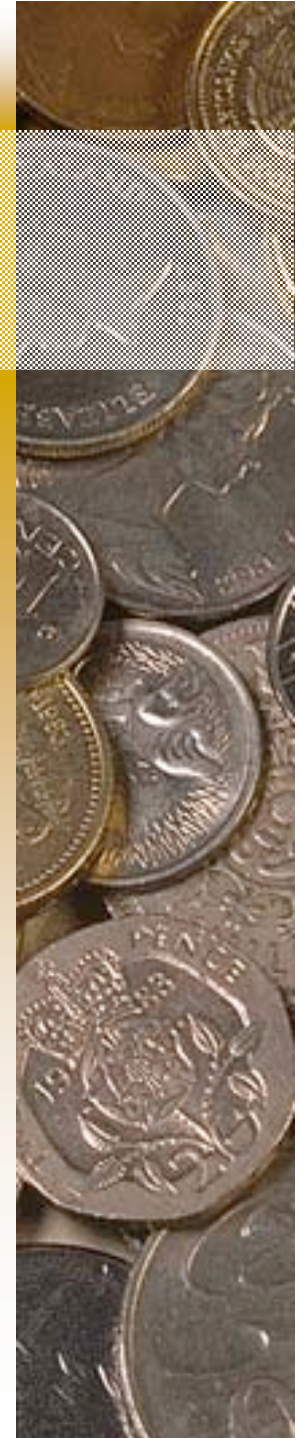
$$V_{Op} = \sum_{t=1}^{\infty} FCF_0 \left(\frac{1+g}{1+WACC} \right)^t$$



Constant Growth Formula (Cont.)

- The summation can be replaced by a single formula:

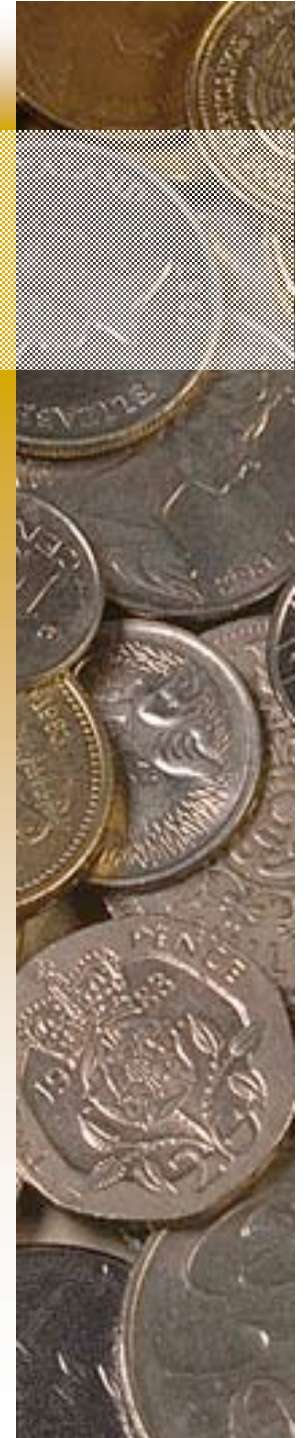
$$V_{Op} = \frac{FCF_1}{(WACC - g)}$$
$$= \frac{FCF_0 (1 + g)}{(WACC - g)}$$



Value of Operations

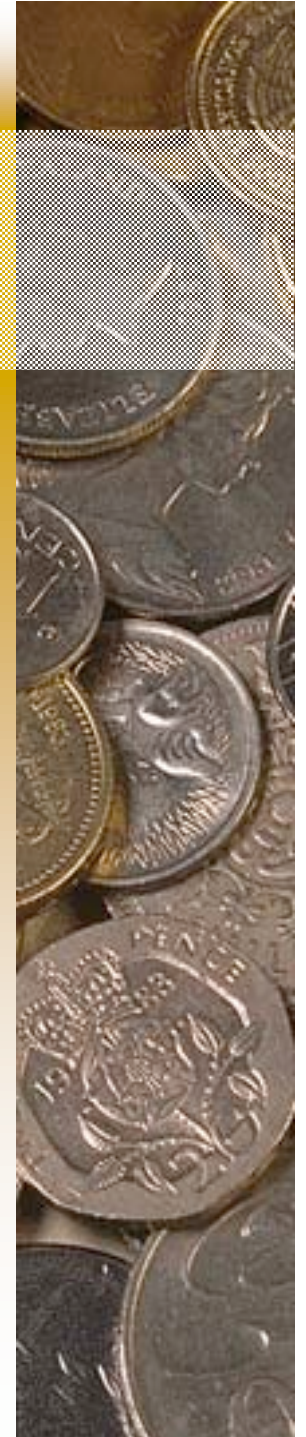
$$V_{Op} = \frac{FCF_0 (1 + g)}{(WACC - g)}$$

$$V_{Op} = \frac{20 (1 + 0.05)}{(0.10 - 0.05)} = 420$$



Value of Equity

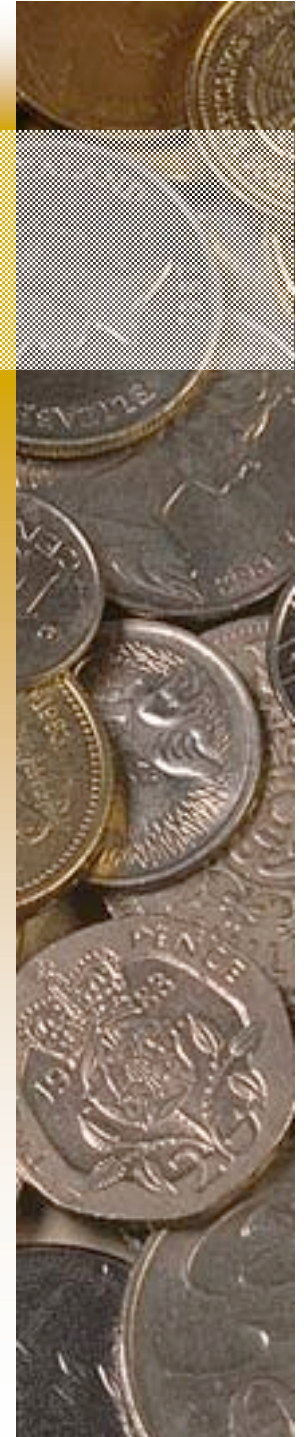
- **Sources of Corporate Value**
 - Value of operations = \$420
 - Value of non-operating assets = \$100
- **Claims on Corporate Value**
 - Value of Debt = \$200
 - Value of Preferred Stock = \$50
 - Value of Equity = ?



Value of Equity

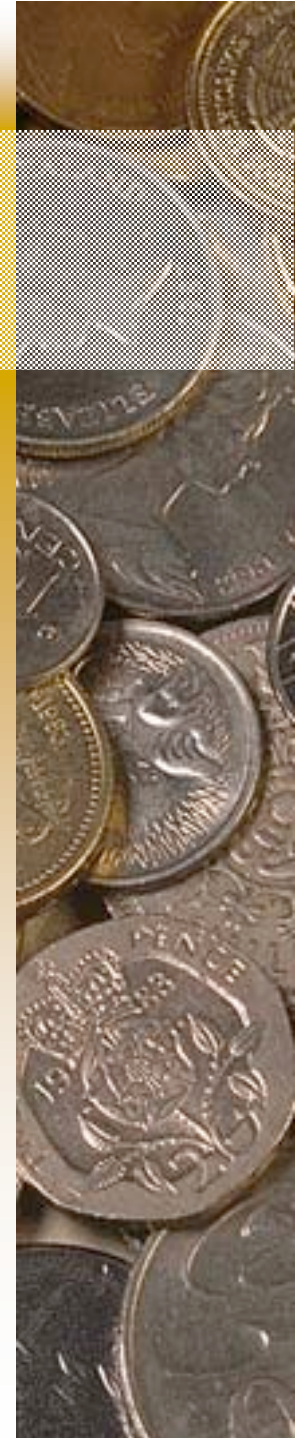
$$\begin{aligned}\text{Total corporate value} &= V_{Op} + \text{Mkt. Sec.} \\ &= \$420 + \$100 \\ &= \$520 \text{ million}\end{aligned}$$

$$\begin{aligned}\text{Value of equity} &= \text{Total} - \text{Debt} - \text{Pref.} \\ &= \$520 - \$200 - \$50 \\ &= \$270 \text{ million}\end{aligned}$$

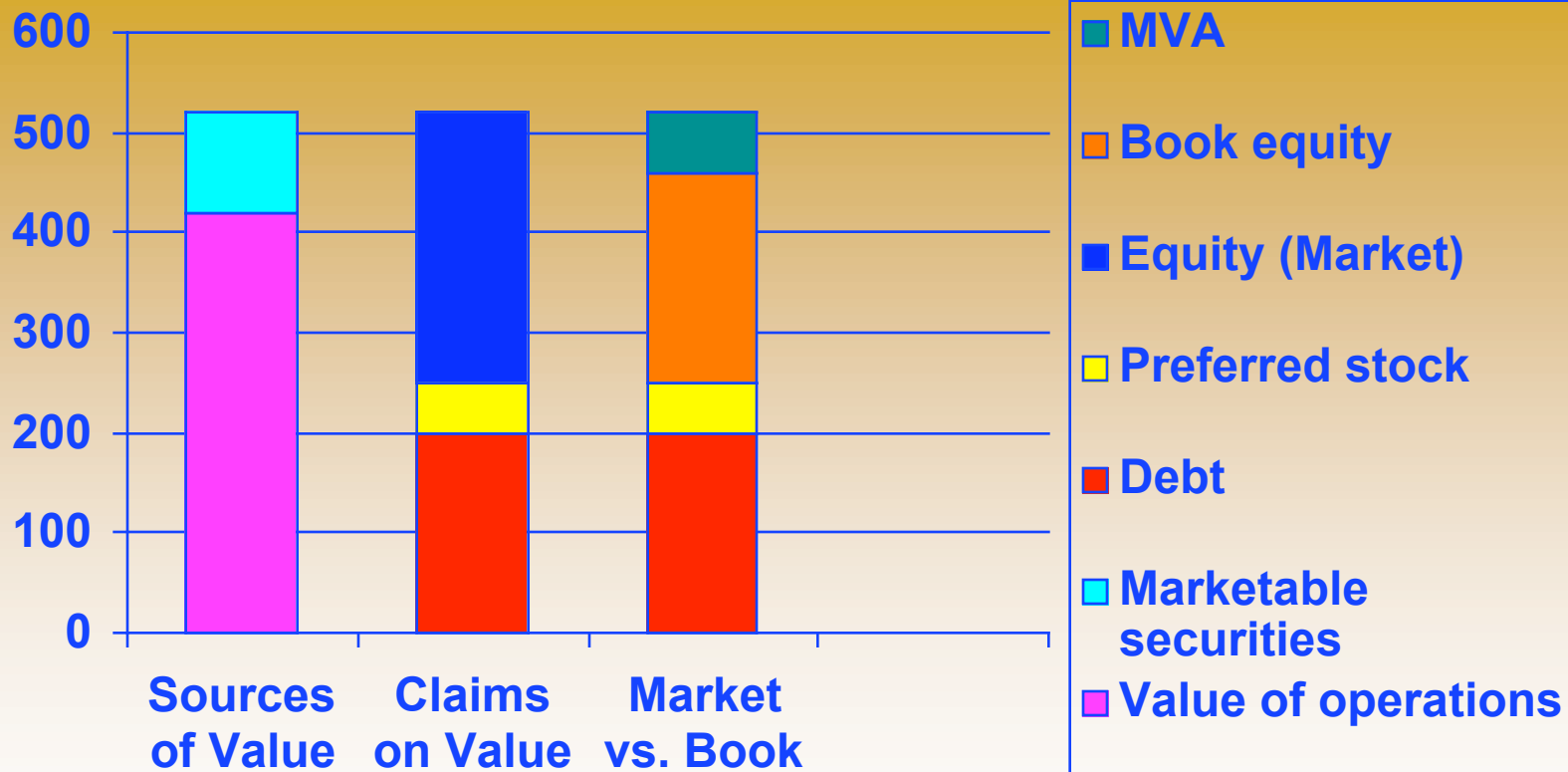


Market Value Added (MVA)

- **MVA = Total corporate value of firm minus total book value of firm**
- **Total book value of firm = book value of equity + book value of debt + book value of preferred stock**
- **MVA = \$520 - (\$210 + \$200 + \$50)
= \$60 million**



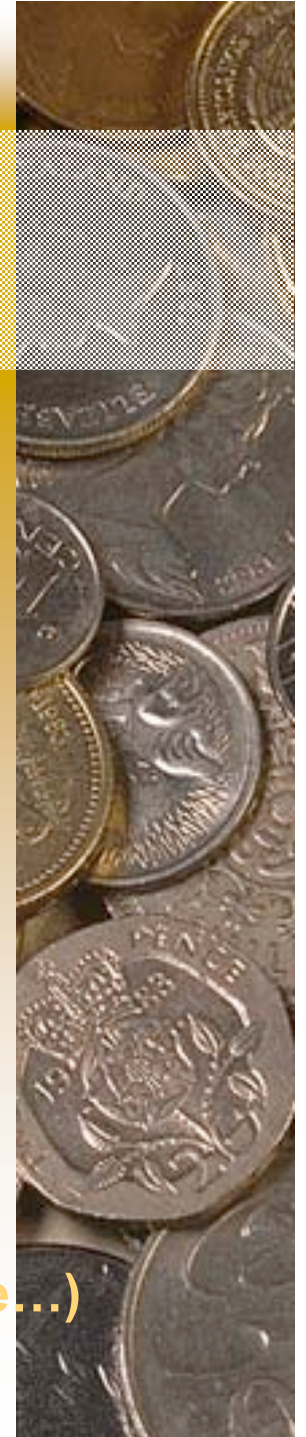
Breakdown of Corporate Value



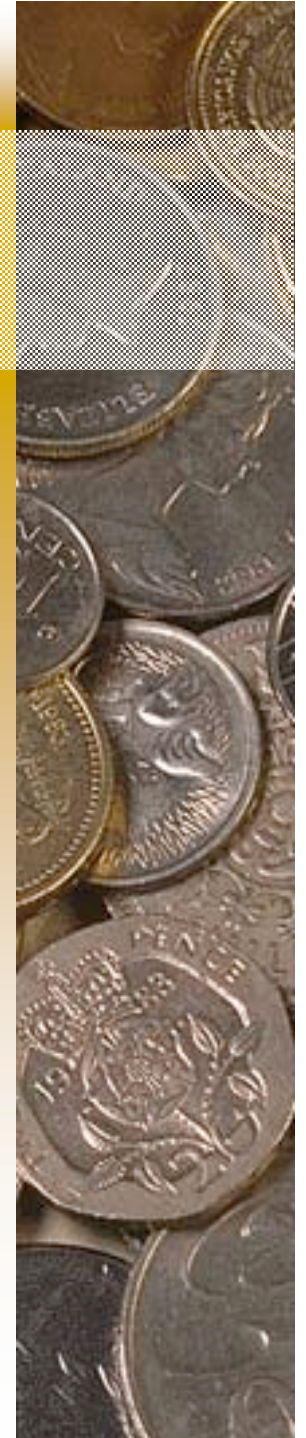
Expansion Plan: Nonconstant Growth

- Finance expansion by borrowing \$40 million and halting dividends.
- Projected free cash flows (FCF):
 - Year 1 FCF = -\$5 million.
 - Year 2 FCF = \$10 million.
 - Year 3 FCF = \$20 million
 - FCF grows at constant rate of 6% after year 3.

(More...)

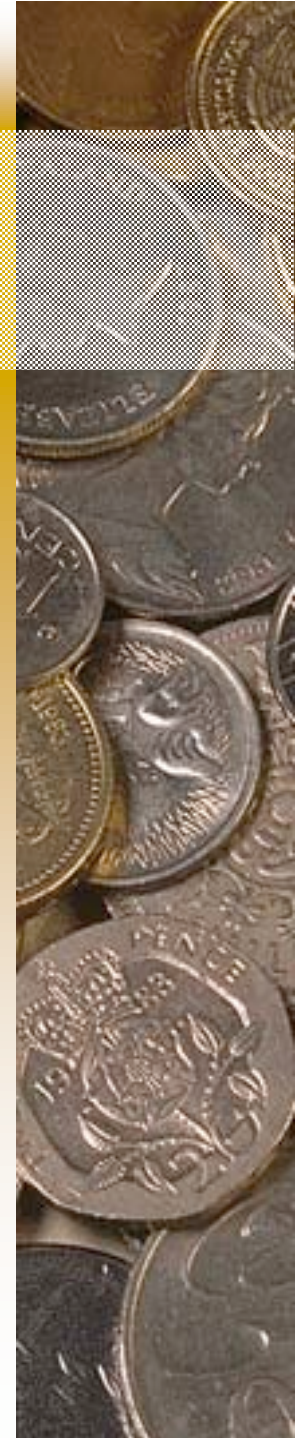


- The weighted average cost of capital, r_c , is 10%.
- The company has 10 million shares of stock.



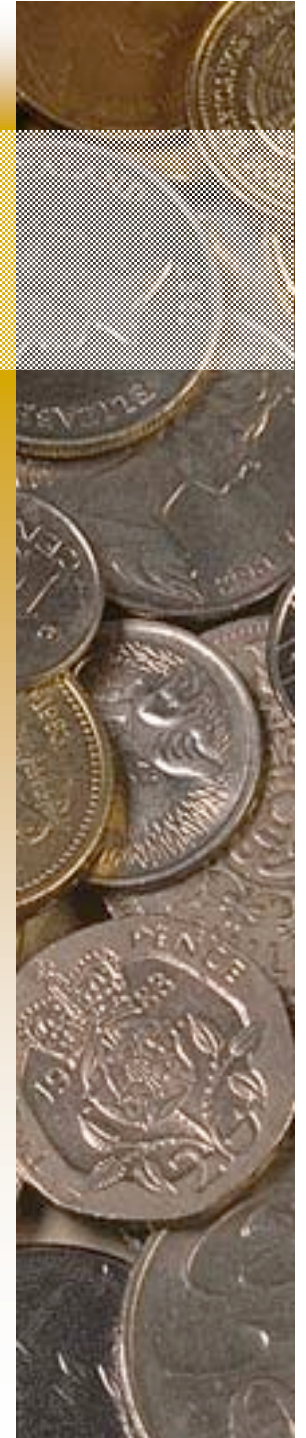
Horizon Value

- Free cash flows are forecast for three years in this example, so the forecast **horizon** is three years.
- Growth in free cash flows is not constant during the forecast, so we can't use the constant growth formula to find the value of operations at time 0.



Horizon Value (Cont.)

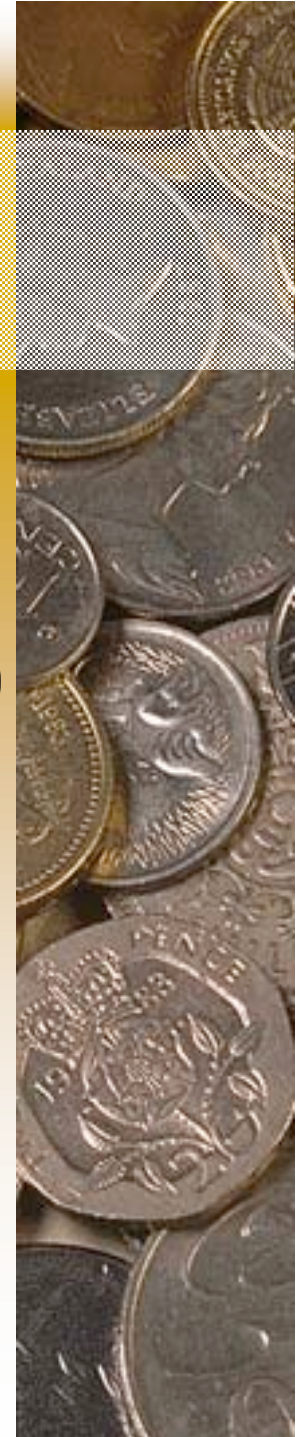
- Growth is constant after the horizon (3 years), so we can modify the constant growth formula to find the value of all free cash flows beyond the horizon, discounted back to the horizon.



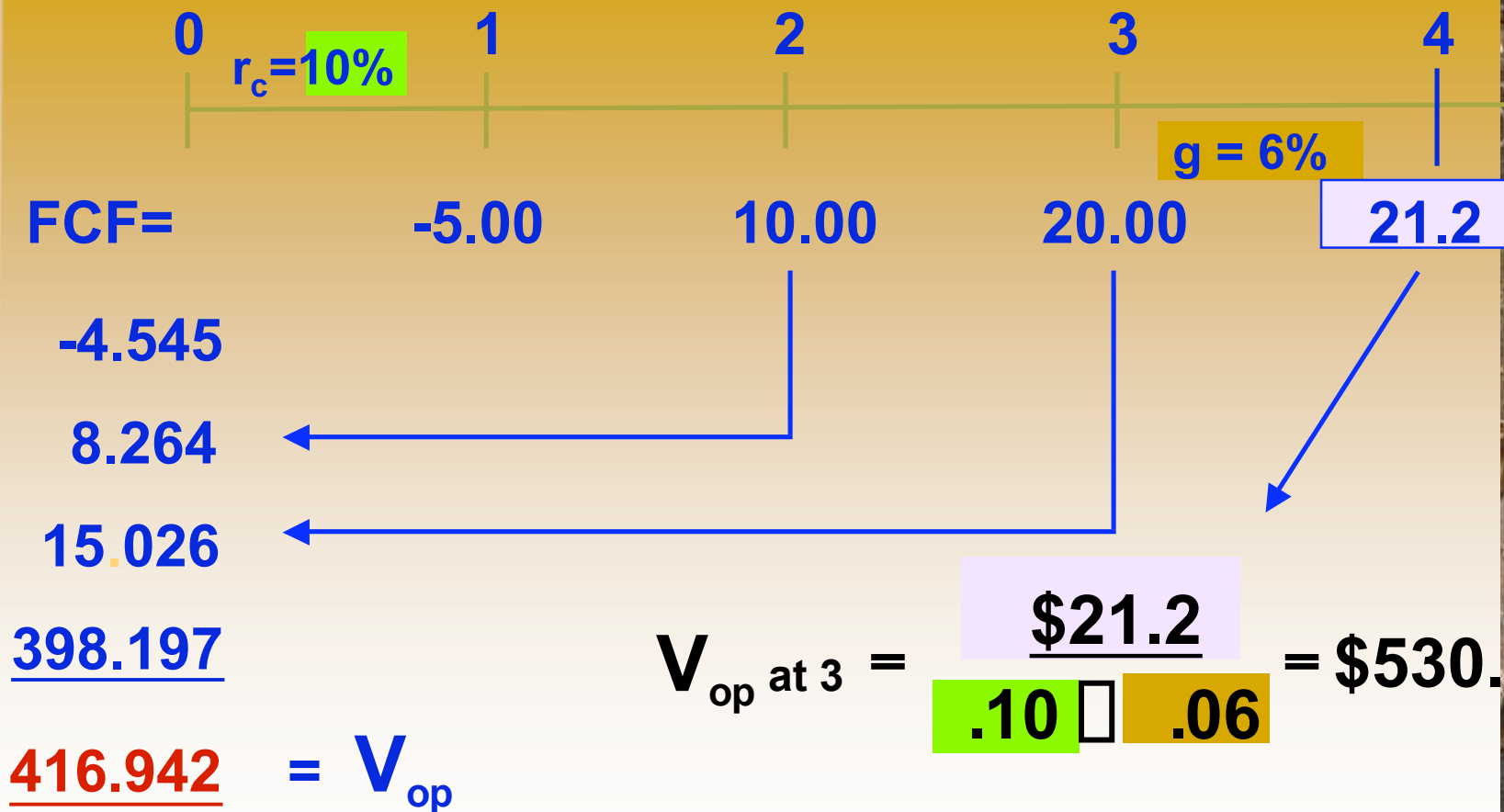
Horizon Value Formula

$$HV = V_{\text{Op at time } t} = \frac{FCF_t (1 + g)}{(WACC - g)}$$

- Horizon value is also called **terminal value**, or **continuing value**.



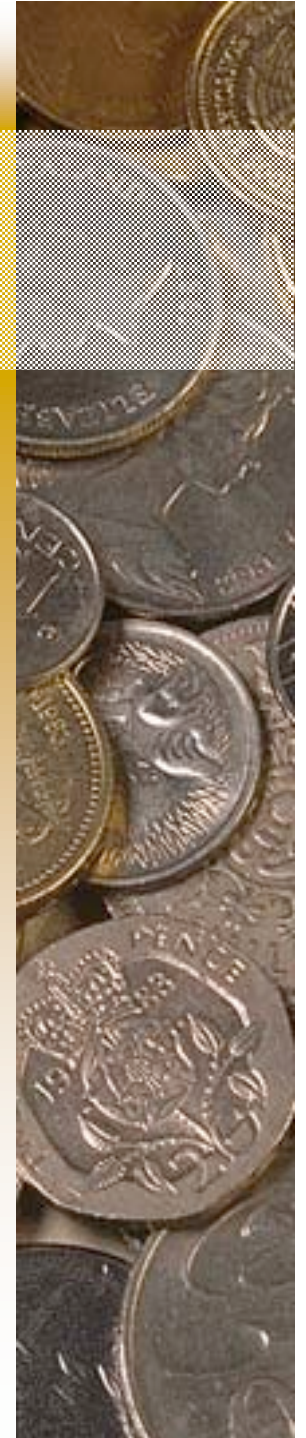
The value of operations = discounted FCF at the cost of capital.



Price per share of common stock.

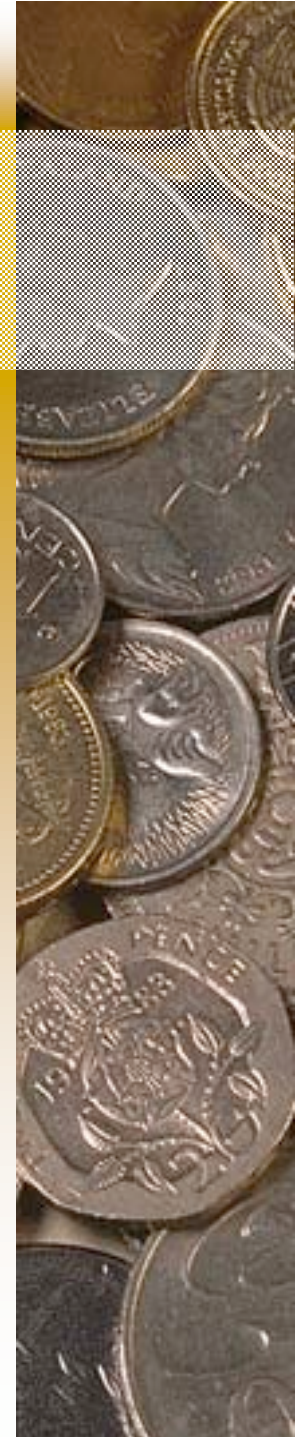
$$\begin{aligned}\text{Value of equity} &= \text{Value of operations} \\ &\quad - \text{Value of debt} \\ &= \$416.94 - \$40 \\ &= \mathbf{\$376.94 \text{ million.}}\end{aligned}$$

$$\begin{aligned}\text{Price per share} &= \$376.94 / 10 = \\ &\mathbf{\$37.69.}\end{aligned}$$



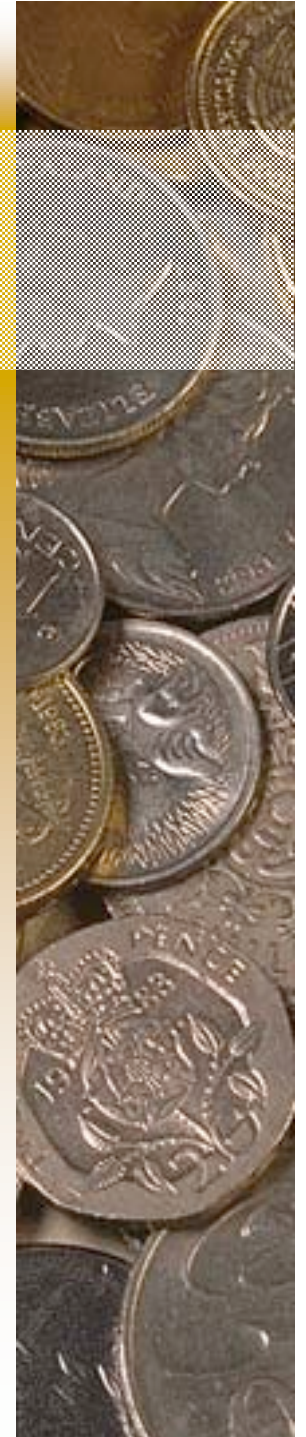
Value-Based Management (VBM)

- VBM is the systematic application of the corporate valuation model to all corporate decisions and strategic initiatives.
- The objective of VBM is to increase Market Value Added (MVA)



MVA and the Four Value Drivers

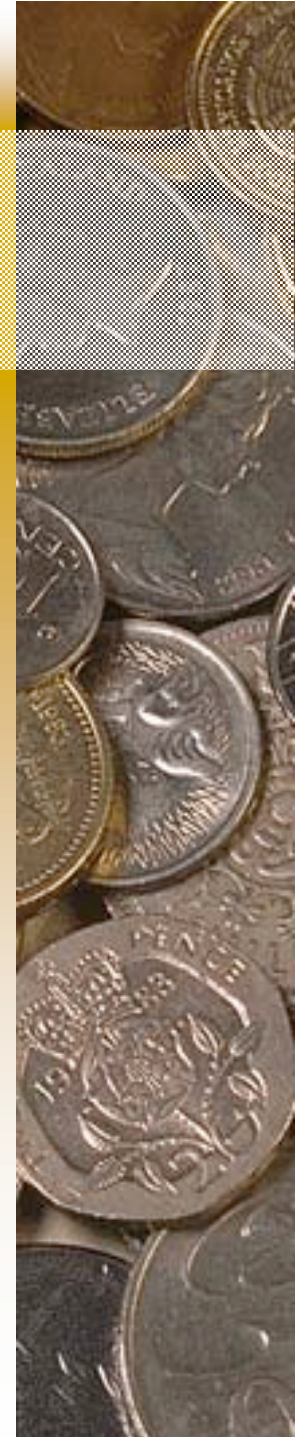
- MVA is determined by four drivers:
 - Sales growth
 - Operating profitability
($OP = NOPAT / Sales$)
 - Capital requirements ($CR = Operating\ capital / Sales$)
 - Weighted average cost of capital



MVA for a Constant Growth Firm

$$MVA_t =$$

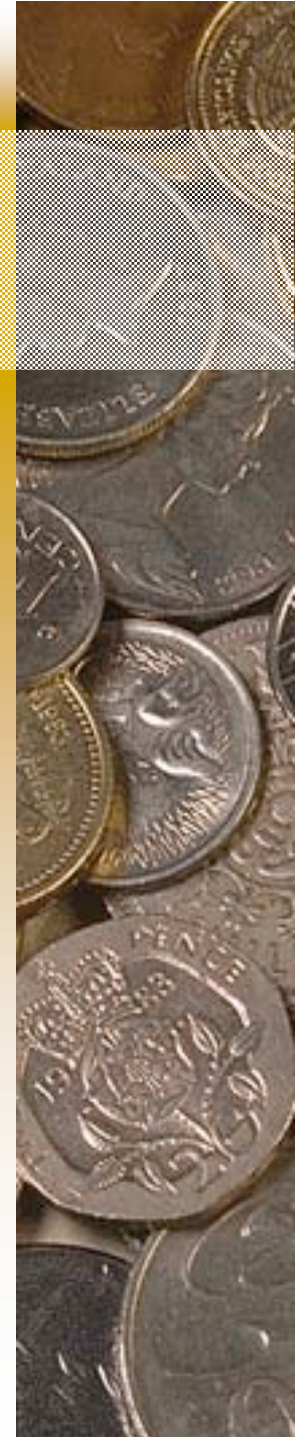
$$\frac{\text{Sales}_t (1 + g) \text{ OP}}{\text{WACC} - g} - \frac{\text{WACC}}{\text{WACC} - g} \frac{\text{CR}}{(1 + g)}$$



Insights from the Constant Growth Model

- The first bracket is the MVA of a firm that gets to keep all of its sales revenues (i.e., its operating profit margin is 100%) and that never has to make additional investments in operating capital.

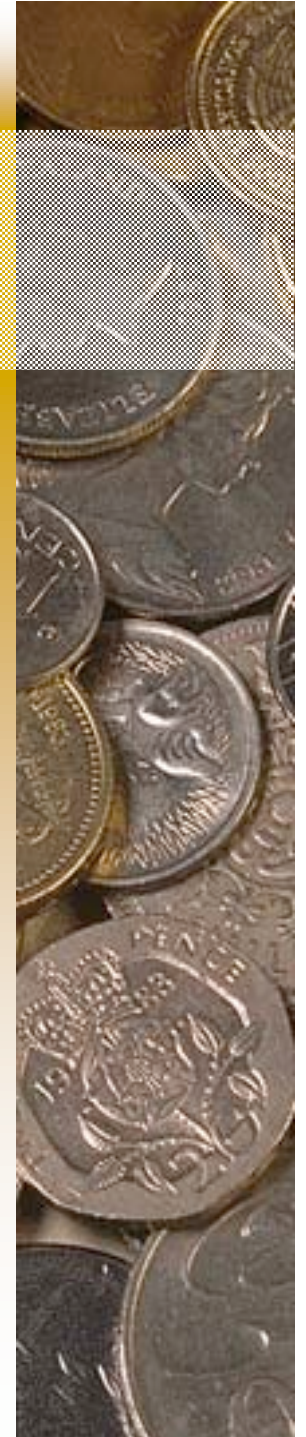
$$\frac{\text{Sales}_t (1 + g)}{\text{WACC} - g}$$



Insights (Cont.)

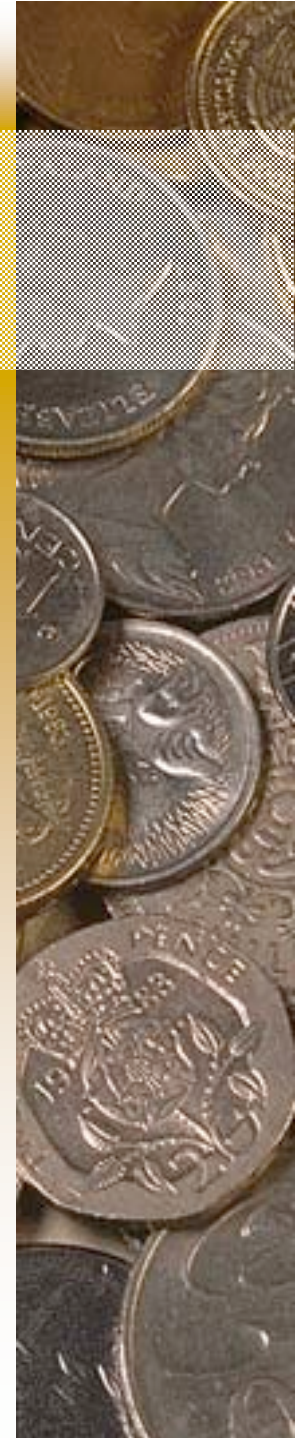
- The second bracket is the operating profit (as a %) the firm gets to keep, less the return that investors require for having tied up their capital in the firm.

$$\left[\begin{array}{c} \square \\ \square \\ \square \end{array} \right] \text{OP} - \left[\square \right] \text{WACC} \left[\begin{array}{c} \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \end{array} \right] \frac{\text{CR}}{(1+g)} \left[\begin{array}{c} \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \\ \square \end{array} \right]$$



Improvements in MVA due to the Value Drivers

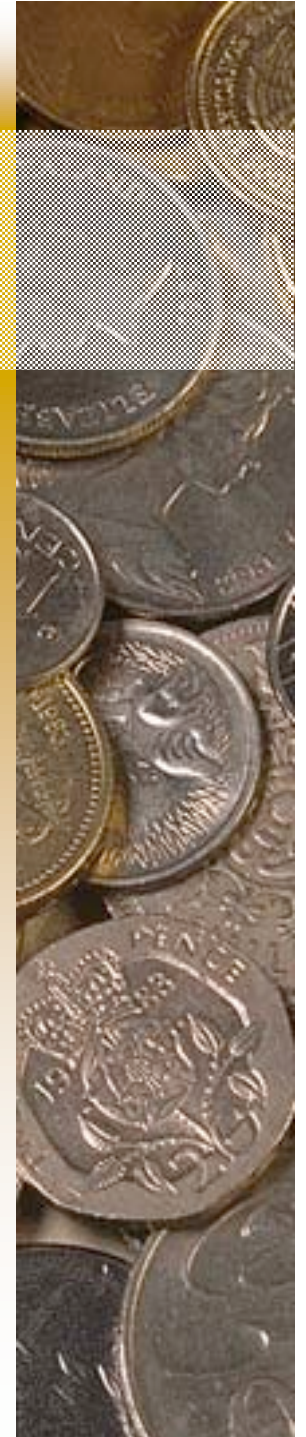
- **MVA will improve if:**
 - WACC is reduced
 - operating profitability (OP) increases
 - the capital requirement (CR) decreases



The Impact of Growth

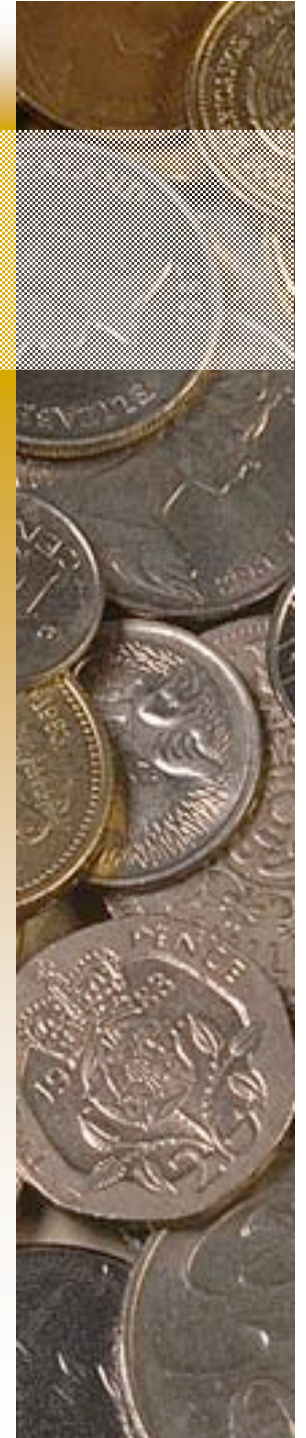
- The second term in brackets can be either positive or negative, depending on the relative size of profitability, capital requirements, and required return by investors.

$$\left[\begin{array}{c} \square \\ \square \\ \square \end{array} \right] OP - \left[\begin{array}{c} \square \\ \square \\ \square \end{array} \right] WACC \left[\begin{array}{c} \square \\ \square \\ \square \\ \square \\ \square \end{array} \right] \frac{CR}{(1+g)} \left[\begin{array}{c} \square \\ \square \\ \square \\ \square \\ \square \end{array} \right]$$



The Impact of Growth (Cont.)

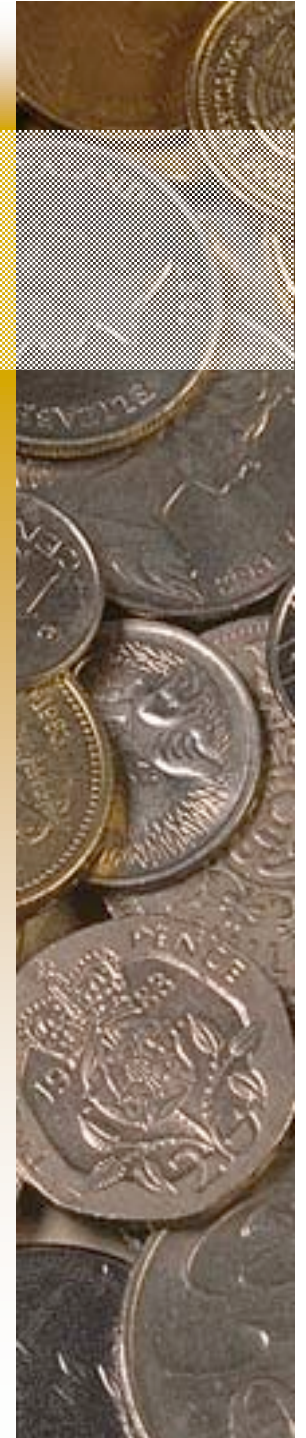
- If the second term in brackets is negative, then growth decreases MVA. In other words, profits are not enough to offset the return on capital required by investors.
- If the second term in brackets is positive, then growth increases MVA.



Expected Return on Invested Capital (EROIC)

- The expected return on invested capital is the NOPAT expected next period divided by the amount of capital that is currently invested:

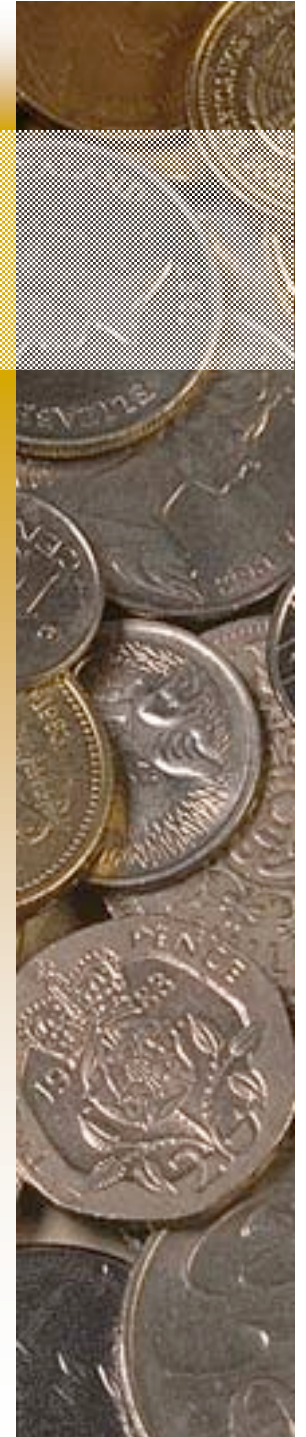
$$\text{EROIC}_t = \frac{\text{NOPAT}_{t+1}}{\text{Capital}_t}$$



MVA in Terms of Expected ROIC

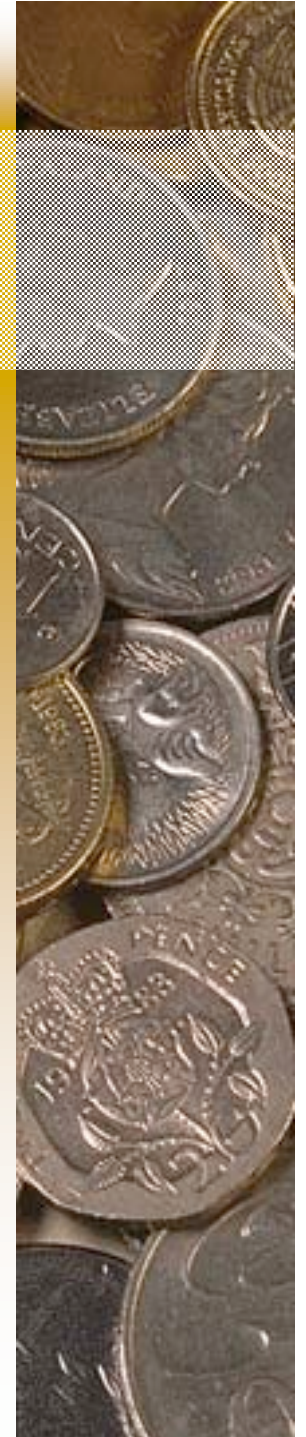
$$MVA_t = \frac{\text{Capital}_t [\text{EROIC}_t - \text{WACC}]}{\text{WACC} - g}$$

If the spread between the expected return, EROIC_t , and the required return, WACC , is positive, then MVA is positive and growth makes MVA larger. The opposite is true if the spread is negative.



The Impact of Growth on MVA

- A company has two divisions. Both have current sales of \$1,000, current expected growth of 5%, and a WACC of 10%.
- Division A has higher profitability (OP=6%) but high capital requirements (CR=78%).
- Division B has lower profitability (OP=4%) but low capital requirements (CR=27%).



What is the impact on MVA if growth goes from 5% to 6%?

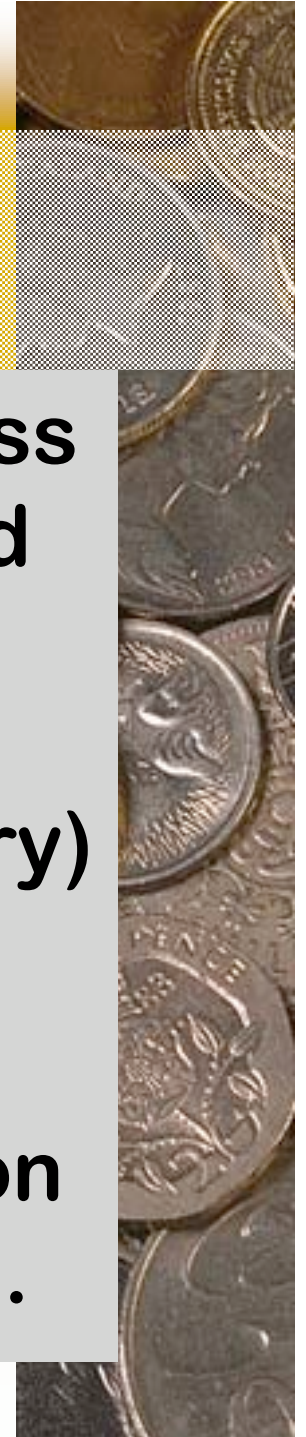
	<u>Division A</u>		<u>Division B</u>	
OP	6%	6%	4%	4%
CR	78%	78%	27%	27%
Growth	5%	6%	5%	6%
MVA	(300.0)	(360.0)	300.0	385.0

Expected ROIC and MVA

	<u>Division A</u>		<u>Division B</u>	
Capital ₀	\$780	\$780	\$270	\$270
Growth	5%	6%	5%	6%
Sales ₁	\$1,050	\$1,060	\$1,050	\$1,060
NOPAT ₁	\$63	\$63.6	\$42	\$42.4
EROIC ₀	8.1%	8.2%	15.6%	15.7%
MVA	(300.0)	(360.0)	300.0	385.0

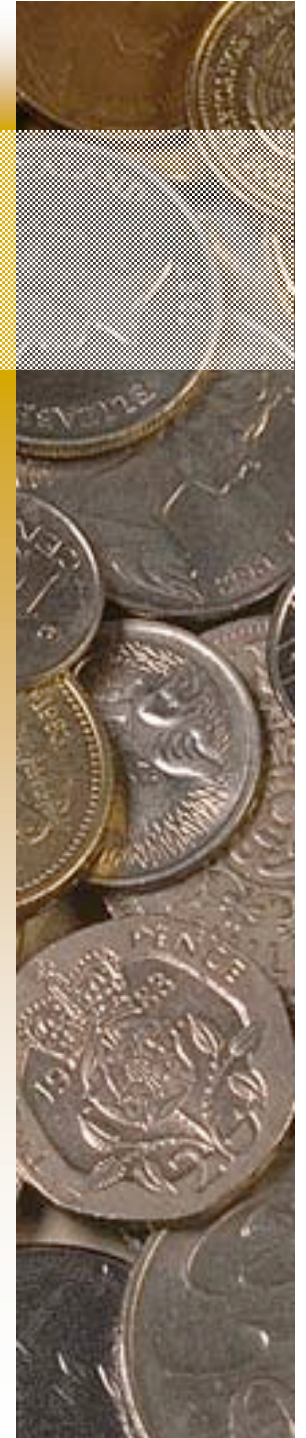
Analysis of Growth Strategies

- The expected ROIC of Division A is less than the WACC, so the division should postpone growth efforts until it improves EROIC by reducing capital requirements (e.g., reducing inventory) and/or improving profitability.
- The expected ROIC of Division B is greater than the WACC, so the division should continue with its growth plans.



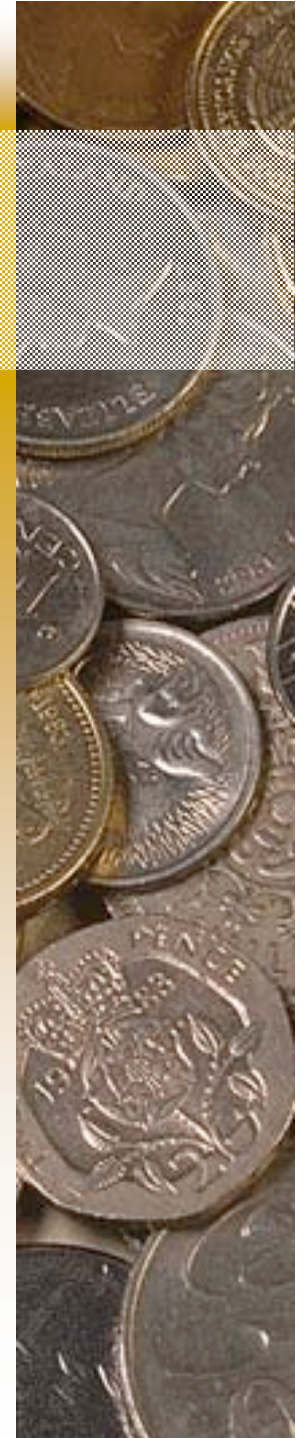
Two Primary Mechanisms of Corporate Governance

- **“Stick”**
 - Provisions in the charter that affect takeovers.
 - Composition of the board of directors.
- **“Carrot: Compensation plans.**



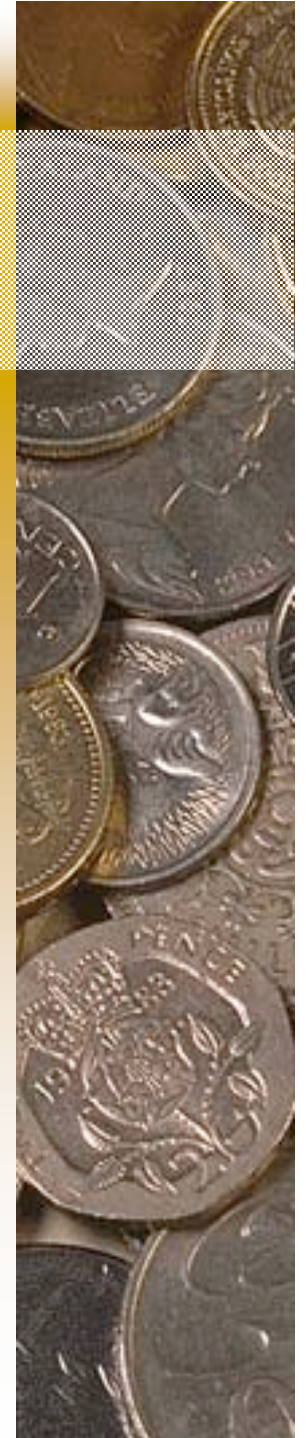
Entrenched Management

- Occurs when there is little chance that poorly performing managers will be replaced.
- Two causes:
 - Anti-takeover provisions in the charter
 - Weak board of directors



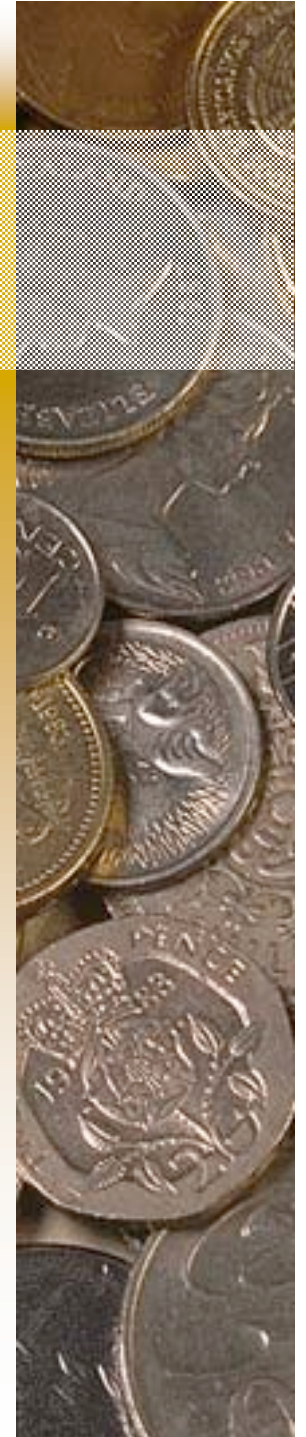
How are entrenched managers harmful to shareholders?

- **Management consumes perks:**
 - Lavish offices and corporate jets
 - Excessively large staffs
 - Memberships at country clubs
- **Management accepts projects (or acquisitions) to make firm larger, even if MVA goes down.**



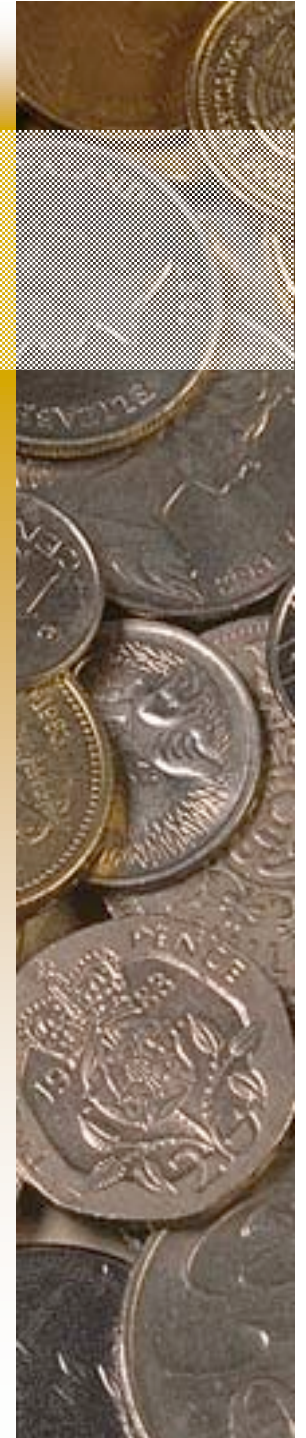
Anti-Takeover Provisions

- Targeted share repurchases (i.e., greenmail)
- Shareholder rights provisions (i.e., poison pills)
- Restricted voting rights plans



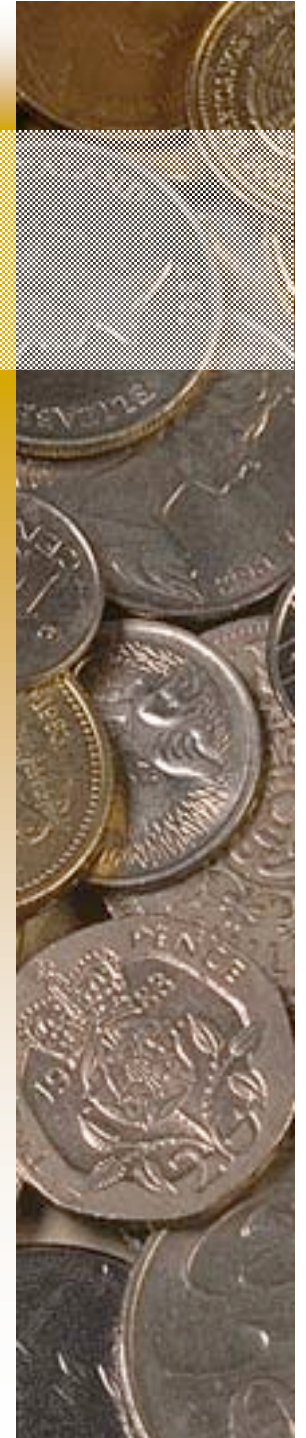
Board of Directors

- **Weak boards have many insiders (i.e., those who also have another position in the company) compared with outsiders.**
- **Interlocking boards are weaker (CEO of company A sits on board of company B, CEO of B sits on board of A).**



Stock Options in Compensation Plans

- Gives owner of option the right to buy a share of the company's stock at a specified price (called the exercise price) even if the actual stock price is higher.
- Usually can't exercise the option for several years (called the vesting period).



Stock Options (Cont.)

- **Can't exercise the option after a certain number of years (called the expiration, or maturity, date).**

