Chapter 16: Payout Policy

1. a. May 7: Declaration date
   June 6: Last with-dividend date
   June 7: Ex-dividend date
   June 11: Record date
   July 2: Payment date

   b. The stock price will fall on the ex-dividend date, June 7. The price falls on this day because, as the stock goes ex-dividend, the shareholders are no longer entitled to receive the dividend.

   c. The annual dividend is: $\$0.075 \times 4 = \$0.30$

   The dividend yield is: $\$0.30/\$27 = 0.0111 = 1.11\%$

   d. The percentage payout rate was: $\$0.30/\$1.90 = 0.1579 = 15.79\%$

   e. A 10 percent stock dividend is equivalent to a 1.10 for 1 stock split. The number of shares outstanding increases by 10%, while the firm's assets are unchanged. The stock dividend therefore will reduce the stock price to: $\$27/1.10 = \$24.55$

2. a. True.

   b. True.

   c. True. The effective rate can be less than the stated rate because the realization of gains can be deferred, which reduces the present value of the tax obligation.

   d. False. Corporations are taxed on 30 percent of dividends received from other corporations.

3. a. The stock price will fall to: C$80 – C$5 = C$75

   b. A share repurchase will have no effect on price per share.

   c. The stock price will fall to: $C\$80 \times 1/2 = C\$40$

   d. The stock price will fall by a factor of 1.10 to: C$80/1.10 = C$72.73

8. a. P = $1,000,000/20,000 = $50

   b. The price tomorrow will be $0.50 per share lower, or $49.50.

9. a. After the repurchase, the market value of equity falls to $990,000, and the number of shares outstanding falls by: $10,000/$50 = 200 shares

   There are 19,800 shares outstanding, so price per share is: $990,000/19,800 = $50

   Price per share is unchanged. An investor who starts with 100 shares and sells one share to the company ends up with $4,950 in stock and $50 in cash, for a total of $5,000.

   b. If the firm pays a dividend, the investor would have 100 shares worth $49.50 each and $50 cash, for a total of $5,000. This is identical to the investor's position after the stock repurchase.

10. A one percent stock dividend has no cash implications. The total market value of equity remains $1,000,000, and shares outstanding increase to: $20,000 \times 1.01 = 20,200$

    Price per share falls to: $1,000,000/20,200 = $49.50

    The investor will end up with 101 shares worth: $101 \times \$49.50 = \$5,000$

    The value of the position is the same as under the cash dividend or repurchase, but the allocation between shares and cash differs.

14. a. After the dividend is paid, total market value of the firm will be $90,000, representing $45 per share. In addition, the investor will receive $5 per share. So the value of the share today is $50.

    b. If the dividend is taxed at 30 percent, then the investor will receive an after-tax cash flow of: $\$5 \times (1 - 0.30) = \$3.50$

    The price today will be: $45 + $3.50 = $48.50

    This is less than the value in part (a) by the amount of taxes investors pay on the dividend.

15. a. The repurchase will have no tax implications. Because the repurchase does not create a tax obligation for the shareholders, the value of the firm today is the value of the firm's assets ($100,000) divided by 2,000 shares, or $50 per share. The firm will repurchase 200 shares for $10,000. After the repurchase, the stock will sell at a price of: $90,000/1800 = $50 per share

The price is the same as before the repurchase.

b. An investor who owns 200 shares and sells 20 shares to the firm will receive: $20 \times \$50 = \$1{,}000$ in cash

This investor will be left with 180 shares worth $9,000, so the total value of the investor's position is $10,000. In the absence of taxes, this is precisely the cash and share value that would result if the firm paid a $5 per share cash dividend. If the firm had paid the dividend, the investor would have received a cash payment of: $200 \times \$5 = \$1{,}000$

Each of the 200 shares would be worth $45, as we found in Problem 14.a.

c. We compute the value of the shares once the firm announces its intention to repurchase shares or to pay a dividend.

If the firm repurchases shares, then today's share price is $50, and the value of the firm is: $\$50 \times 2000 = \$100{,}000$

If instead the firm pays a dividend, then the with-dividend stock price is $48.50 (see Problem 14.b) so the value of the firm is only $97,000. This is $3,000 less than the value that would result if the firm repurchased shares. The $3,000 difference represents the taxes on the $10,000 in dividends ($5 × 2000 shares).

16. a. $$\text{Price} = \text{PV(after-tax dividend plus final share price)} = \frac{[\$2 \times (1 - 0.30)] + \$20}{1.10} = \$19.45$$

b. $$\text{Before tax rate of return} = \frac{\text{Dividend} + \text{Capital gain}}{\text{Price}} = \frac{\$2 + (\$20 - \$19.45)}{\$19.45} = 0.1311 = 13.11\%$$

c. $$\text{Price} = \text{PV(after-tax dividend plus final share price)} = \frac{[\$3 \times (1 - 0.30)] + \$20}{1.10} = \$20.09$$

d. $$\text{Before-tax rate of return} = \frac{\text{Dividend} + \text{Capital gain}}{\text{Price}} = \frac{\$3 + (\$20 - \$20.09)}{\$20.09} = 0.1448 = 14.48\%$$

The before-tax return is higher because the larger dividend creates a greater tax burden. The before-tax return must increase in order to provide the same after-tax return of 10%.

17. a. The pension fund pays no taxes. The corporation pays taxes equal to 35 percent of capital gains income and: 35% × (1 – 0.70) = 10.5% of dividend income.
The individual pays 15% taxes on dividends and 10% taxes on capital gains.
Therefore, the after-tax rate of return for each investor equals:

$$\frac{\text{dividend} \times (1 - \text{dividend tax}) + \text{capital gains} \times (1 - \text{capital gains rate})}{\text{price}}$$

We can use this formula to construct the following table of after-tax returns:

	Investor		
Stock	Pension	Corporation	Individual
A	10.00%	6.500%	9.00%
B	10.00%	7.725%	8.75%
C	10.00%	8.950%	8.50%

b. The after-tax proceeds equal: [dividend × (1 – 0.5)] + [capital gain × (1 – 0.2)]

If these proceeds are to provide an 8% after-tax return, then:

$$0.08 \times P_0 = (\text{dividend} \times 0.5) + (\text{capital gain} \times 0.8)$$

$$P_0 = \frac{(\text{dividend} \times 0.5) + (\text{capital gain} \times 0.8)}{0.08}$$

Using this formula for each stock, we find:

$$\text{Stock A: } P_0 = \frac{(\$0 \times 0.5) + (\$10 \times 0.8)}{0.08} = \$100$$

$$\text{Stock B: } P_0 = \frac{(\$5 \times 0.5) + (\$5 \times 0.8)}{0.08} = \$81.25$$

$$\text{Stock C: } P_0 = \frac{(\$10 \times 0.5) + (\$0 \times 0.8)}{0.08} = \$62.50$$

Notice that a larger proportion of before-tax returns paid in the form of dividends results in a lower stock price.

18. The increase in stock prices reflects the positive information contained in the dividend increase. The stock price increase can be interpreted as a reflection of a new assessment of the firm's prospects, not as a reflection of investors' preferences for high dividend payout ratios.

19. a. True.

    b. False. Firms smooth out dividends and do not maintain a strict proportional relationship between current earnings and dividends. They move dividends only part of the way toward the target payout ratio when earnings change.

    c. True.

    d. False. Firms seem reluctant to reduce dividends and therefore do not increase dividends in response to earnings increases that are not expected to persist, or that are not expected to be representative of long-run earnings prospects.

20. a. High-risk companies tend to have low dividend payout ratios in order to reduce the risk of dividend cuts in the future. They have low price-earnings ratios because a high risk premium reduces the present value of an expected stream of earnings or dividends.

    b. Firms that experience a temporary decline in profits have high dividend payout ratios because they try to stabilize dividends despite the fact that earnings have fallen. Their price-earnings ratios tend to be higher if the earnings decline is expected to be temporary. The stock price reflects the entire stream of future earnings, not just the temporarily low level of current earnings.

    c. Companies that expect a decline in profits tend to have low dividend payout ratios because the current dividend paid reflects, in part, the lower expected future profits and therefore is low relative to current profits. The price-earnings ratio is low because the price reflects the anticipation of lower future earnings.

    d. Growth companies usually have low dividend payout ratios because these firms have ample investment opportunities and can reduce the costs involved in issuing new securities by retaining and reinvesting earnings. Their price-earnings ratios are high because the stock price reflects the anticipation of future earnings growth.