

■ Solutions to Problems

P12-1. LG 1: Dividend payment procedures

Basic

a.

	Debit	Credit
Retained earnings (Dr.)	\$330,000	
Dividends payable (Cr.)		\$330,000

b. Ex dividend date is Thursday, July 6.

c.	Cash	\$170,000	Dividends payable	\$	0
			Retained earnings		\$2,170,000

d. The dividend payment will result in a decrease in total assets equal to the amount of the payment.

e. Notwithstanding general market fluctuations, the stock price would be expected to drop by the amount of the declared dividend on the ex dividend date.

P12-2. LG 1: Personal finance: Dividend payment

Intermediate

a. Friday, May 7

b. Monday, May 10

c. The price of the stock should drop by the amount of the dividend (\$0.80).

d. She would be better off buying the stock at \$35 and taking the dividend. Her \$0.80 dividend would be taxed at the maximum rate of 15% and her \$4 short-term capital gain would be taxed at your ordinary marginal tax rate, which is probably higher than the 15%. If she bought the stock post dividend for \$34.20 she would pay her marginal ordinary tax rate on the full \$4.80 of short-term capital gains.

P12-3. LG 2: Residual dividend policy

Intermediate

a. *Residual dividend policy* means that the firm will consider its investment opportunities first. If after meeting these requirements there are funds left, the firm will pay the residual out in the form of dividends. Thus, if the firm has excellent investment opportunities, the dividend will be smaller than if investment opportunities are limited.

b.

Proposed

Capital budget	\$2,000,000	\$3,000,000	\$4,000,000
Debt portion (40%)	800,000	1,200,000	1,600,000
Equity portion (60%)	1,200,000	1,800,000	2,400,000
Available retained earnings	\$2,000,000	\$2,000,000	\$2,000,000
Dividend	800,000	200,000	0
Dividend payout ratio	40%	10%	0%

c. The amount of dividends paid is reduced as capital expenditures increase. Thus, if the firm chooses larger capital investments, dividend payments will be smaller or nonexistent.

P12-4. LG 3: Dividend constraints

Intermediate

- a. Maximum dividend: $\frac{\$1,900,000}{400,000} = \4.75 per share
- b. Largest dividend without borrowing: $\frac{\$160,000}{400,000} = \0.40 per share
- c. In Part (a), cash and retained earnings each decrease by \$1,900,000.
In Part (b), cash and retained earnings each decrease by \$160,000.
- d. Retained earnings (and hence stockholders' equity) decrease by \$80,000.

P12-5. LG 3: Dividend payment procedures

Intermediate

- a. Maximum dividend: $\frac{\$40,000}{25,000} = \1.60 per share
- b. A \$20,000 decrease in cash and retained earnings is the result of a \$0.80 per share dividend.
- c. Cash is the key constraint, because a firm cannot pay out more in dividends than it has in cash, unless it borrows.

P12-6. LG 4: Alternative dividend policies

Intermediate

Year	Dividend	Year	Dividend
a.			
2000	\$0.10	2005	\$1.28
2001	0.00	2006	1.12
2002	0.72	2007	1.28
2003	0.48	2008	1.52
2004	0.96	2009	1.60
b.			
2000	\$1.00	2005	\$1.10
2001	1.00	2006	1.20
2002	1.00	2007	1.30
2003	1.00	2008	1.40
2004	1.00	2009	1.50
c.			
2000	\$0.50	2005	\$0.66
2001	0.50	2006	0.50
2002	0.50	2007	0.66
2003	0.50	2008	1.14
2004	0.50	2009	1.30

- d. With a constant-payout policy, if the firm's earnings drop or a loss occurs the dividends will be low or nonexistent. A regular dividend or a low-regular-and-extra dividend policy reduces owner uncertainty by paying relatively fixed and continuous dividends.

P12-7. LG 4: Alternative dividend policies

Challenge

Year	Dividend	Year	Dividend
a.			
2002	\$0.22	2006	\$0.00
2003	0.50	2007	0.60
2004	0.30	2008	0.78
2005	0.53	2009	0.70
b.			
2002	\$0.50	2006	\$0.50
2003	0.50	2007	0.50
2004	0.50	2008	0.60
2005	0.50	2009	0.60
c.			
2002	\$0.50	2006	\$0.50
2003	0.50	2007	0.50
2004	0.50	2008	0.88
2005	0.50	2009	0.78
2002	\$0.50	2006	\$0.50
2003	0.50	2007	0.62
2004	0.50	2008	0.88
2005	0.53	2009	0.78

- e. Part (a) uses a constant-payout-ratio dividend policy, which will yield low or no dividends if earnings decline or a loss occurs. Part (b) uses a regular dividend policy, which minimizes the owners' uncertainty of earnings. Part (c) uses a low-regular-and-extra dividend policy, giving investors a stable income which is necessary to build confidence in the firm. Part (d) still provides the stability of Parts (b) and (c) and provides an extra \$0.04 per year.

P12-8. LG 5: Stock dividend—firm

Intermediate

	(a) 5% Stock Dividend	(b) (1) 10% Stock Dividend	(b) (2) 20% Stock Dividend
Preferred stock	\$100,000	\$100,000	\$100,000
Common stock (xx,xxx shares @\$2.00 par)	21,000 ¹	22,000 ²	24,000 ³
Paid-in capital in excess of par	294,000	308,000	336,000
Retained earnings	<u>85,000</u>	<u>70,000</u>	<u>40,000</u>
Stockholders' equity	\$500,000	\$500,000	\$500,000

¹10,500 shares²11,000 shares³12,000 shares

- c. Stockholders' equity has not changed. Funds have only been redistributed between the stockholders' equity accounts.

P12-9. LG 5: Cash versus stock dividend

Intermediate

a.

	Cash Dividend			
	\$0.01	\$0.05	\$0.10	\$0.20
Preferred stock	\$ 100,000	\$ 100,000	\$100,000	\$100,000
Common stock (400,000 shares @\$1.00 par)	400,000	400,000	400,000	400,000
Paid-in capital in excess of par	200,000	200,000	200,000	200,000
Retained earnings	<u>316,000</u>	<u>300,000</u>	<u>280,000</u>	<u>240,000</u>
Stockholders' equity	\$1,016,000	\$1,000,000	\$980,000	\$940,000

b.

	Stock Dividend			
	1%	5%	10%	20%
Preferred stock	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
Common stock (xxx,xxx shares @\$1.00 par)	404,000	420,000	440,000	480,000
Paid-in capital in excess of par	212,000	260,000	320,000	440,000
Retained earnings	<u>304,000</u>	<u>240,000</u>	<u>160,000</u>	<u>0</u>
Stockholders' equity	\$1,020,000	\$1,020,000	\$1,020,000	\$1,020,000

- c. Stock dividends do not affect stockholders' equity; they only redistribute retained earnings into common stock and additional paid-in capital accounts. Cash dividends cause a decrease in retained earnings and, hence, in overall stockholders' equity.

P12-10. LG 5: Personal finance: Stock dividend—investor

Intermediate

- a. $EPS = \frac{\$80,000}{40,000} = \2.00
- b. $\text{Percent ownership} = \frac{400}{40,000} = 1.0\%$
- c. Percent ownership after stock dividend: $440 \div 44,000 = 1\%$; stock dividends maintain the same ownership percentage. They do not have a real value.
- d. Market price: $\$22 \div 1.10 = \20 per share
- e. Her proportion of ownership in the firm will remain the same, and as long as the firm's earnings remain unchanged, so, too, will her total share of earnings.

P12-11. LG 5: Personal finance: Stock dividend—investor

Challenge

- a. $EPS = \frac{\$120,000}{50,000} = \2.40 per share
- b. $\text{Percent ownership} = \frac{500}{50,000} = 1.0\%$

His proportionate ownership remains the same in each case

- c. $\text{Market price} = \frac{\$40}{1.05} = \$38.10$

$$\text{Market price} = \frac{\$40}{1.10} = \$36.36$$

The market price of the stock will drop to maintain the same proportion, since more shares are being used.

- d. $EPS = \frac{\$2.40}{1.05} = \2.29 per share
 $EPS = \frac{\$2.40}{1.10} = \2.18 per share
- e. Value of holdings: \$20,000 under each plan.
 As long as the firm's earnings remain unchanged, his total share of earnings will be the same.
- f. The investor should have no preference because the only value is of a psychological nature. After a stock split or dividend, however, the stock price tends to go up faster than before.

P12-12. LG 6: Stock split—firm

Intermediate

- | | | |
|---------------------|-------------------|----------------|
| a. CS = \$1,800,000 | (1,200,000 shares | @ \$1.50 par) |
| b. CS = \$1,800,000 | (400,000 shares | @ \$4.50 par) |
| c. CS = \$1,800,000 | (1,800,000 shares | @ \$1.00 par) |
| d. CS = \$1,800,000 | (3,600,000 shares | @ \$0.50 par) |
| e. CS = \$1,800,000 | (150,000 shares | @ \$12.00 par) |

P12-13. LG 1: Stock splits

Easy

- a. $400 \times 4 = 1600$ shares will be owned by Nathan after the split.
- b. $\$121 \div 4 = \30.25 per share of Apple after the 4:1 split
- c. Value of Apple in Nathan's portfolio = shares owned \times price per share
 $\$400 \times \$121 = \$48,400$ value before the split
 $1600 \times \$30.25 = \$48,400$ value after the split
- d. Nathan does not experience a gain or a loss and, hence, his financial conditions does not change. Nathan still owns the same percentage of all Apple shares.
- e. Even if there was a gain or loss attributable to the split, Nathan would not have any tax liability unless he actually sold the stock and realized that change for tax purposes.

P12-14. LG 5, 6: Stock split versus stock dividend—firm

Challenge

- a. There would be a decrease in the par value of the stock from \$3 to \$2 per share. The shares outstanding would increase to 150,000. The common stock account would still be \$300,000 (150,000 shares at \$2 par).
- b. The stock price would decrease by one-third to \$80 per share.
- c. Before stock split: \$100 per share ($\$10,000,000 \div 100,000$)
 After stock split: \$66.67 per share ($\$10,000,000 \div 150,000$)
- d.
 - i. A 50% stock dividend would increase the number of shares to 150,000 but would not entail a decrease in par value. There would be a transfer of \$150,000 into the common stock account and \$5,850,000 in the paid-in capital in excess of par account from the retained earnings account, which decreases to \$4,000,000.
 - ii. The stock price would change to approximately the same level.
 - iii. Before dividend: \$100 per share ($\$10,000,000 \div 100,000$)
 After dividend: \$26.67 per share ($\$4,000,000 \div 150,000$)
- e. Stock splits cause an increase in the number of shares outstanding and a decrease in the par value of the stock with no alteration of the firm's equity structure. However, stock dividends cause an increase in the number of shares outstanding without any decrease in par value. Stock dividends cause a transfer of funds from the retained earnings account into the common stock account and paid-in capital in excess of par account.

P12-15. LG 6: Stock repurchase

Intermediate

- a. Shares to be repurchased = $\frac{\$400,000}{\$21.00} = 19,047$ shares
- b. $EPS = \frac{\$800,000}{(400,000 - 19,047)} = \frac{\$800,000}{380,953} = \$2.10$ per share

If 19,047 shares are repurchased, the number of common shares outstanding will decrease and earnings per share will increase.

- c. Market price: $\$2.10 \times 10 = \21.00 per share

- d. The stock repurchase results in an increase in earnings per share from \$2.00 to \$2.10.
- e. The pre-repurchase market price is different from the post-repurchase market price by the amount of the cash dividend paid. The post-repurchase price is higher because there are fewer shares outstanding.

Cash dividends are taxable to the stockholder when they are distributed and are taxed at a maximum 15% tax rate. If the firm repurchases stock, taxes on the increased value resulting from the purchase are also due at the time of the repurchase. The additional \$1 gain would be taxed at either the long-term capital gains rate of 15%, the same as the dividend, unless the stock was held for less than 1 year then the gain would be short-term and taxed at the higher marginal ordinary income rate. Which alternative is preferred by the shareholders would depend on the investors' holding period for the stock at the time the repurchase is made. Taxes would not have to be paid on the repurchase gains until the shares are sold.

P12-16. Ethics problem

Intermediate

Students should argue that all of the methods being contemplated by the chief financial officer (CFO) are legal and therefore not unethical. Others may argue that, even if legal, the actions are unethical and should not be pursued. The final question tries to address how firm the students' convictions are. It is one thing to demonstrate a course of action and make a recommendation. Acting in the face of an opposing view by a superior is a bit more difficult, but should not discourage the student from maintaining their viewpoint.

■ Case

Establishing General Access Company's Dividend Policy and Initial Dividend

This case requires the student to evaluate the alternative dividend payout policies that a firm may follow. They need to evaluate the alternatives with regard to both the financial facts of the firm as well as the stockholders' dividend preferences.

1. The company has experienced positive and increasing earnings since it went public in 2003. Management believes that EPS should remain stable over the next three years ($\pm 10\%$). This stable earning pattern is conducive to having some form of regular dividend payout policy. Either the *regular dividend policy* or the *low-regular-and-extra dividend policy* would be consistent with the earnings stability. The *constant payout ratio* could work but may be unacceptable to the shareholders due to the nature of the industry. Competition in the Internet access industry is strong. Should General Access experience volatility in their earnings they would pass this volatility on to its shareholders through dividend changes.
2. The *low-regular-and-extra dividend policy* should be adopted for two reasons. First, this approach provides the dividend stability consistent with the firm's earnings stability and growth. Secondly, the firm has the flexibility to increase or decrease dividends when earnings vacillate due to economic or competitive conditions.
3. There are six factors the board should consider before setting an initial dividend policy:
 - a. *Legal constraints*—Are there legal restrictions that come into play that will prohibit the firm from paying a dividend? A common constraint in most states is the firm cannot pay dividends out of "legal capital," which is normally measured as the par value of common stock, plus perhaps any paid-in capital in excess of par.

- b. *Contractual constraints*—Loan covenants may be in place that place some prohibitions on the ability of the firm to pay dividends.
 - c. *Internal constraints*—This factor addresses whether or not the firm has the available funds to make the cash dividend payments. Although legally a firm can borrow to pay dividends, most lenders are reluctant to make such loans.
 - d. *Growth prospects*—If the firm needs the funds to invest in new or ongoing projects they may wish to retain earnings to fund the investments. The firm can pay dividends and then raise funds externally, but often these external sources are more expensive and/or increase the risk of the firm.
 - e. *Owner considerations*—Although it is impossible to maximize the wealth of every single owner, managers should consider the tax status, owners' other wealth opportunities, and ownership dilution possibilities when making the dividend decision.
 - f. *Market consideration*—How will market participants view the dividend decision? This factor is concerned with the information content of the decision to institute a dividend payout where none previously existed.
4. Ms. McNeely will want to set a dividend that is high enough to inform stockholders of the financial strength of the firm. She needs to be cautious of not setting it too high and forcing the firm into a dividend cut possibility in future years. The volatility of EPS is an important consideration. A worst-case scenario for EPS volatility is minus 10%. EPS could be as low as \$3.33, but could rise to \$4.07 in a best-case outcome. The most likely scenario growth of 5% results in an EPS of \$3.89. She should also look at the dividend policies of competitor firms. What is their current policy and what policy did they follow when they first started paying out a dividend? Investor's may partially form their expectations from the decisions of these competitors.
 5. The initial dividend should be approximately \$0.72 per share per year (\$0.18 per quarter). General Access has had EPS in excess of \$0.72 since 2004, the year after they went public. This amount is a payout ratio of about 20% based on 2009 EPS. This is a substantial initial dividend, which is probably what is needed by the market since investors in General Access have experienced rapid share price appreciation. To start with too low of a dividend would signal a decline in the investment potential of the firm. To make the dividend higher may place financial stress on the firm in the near future should profits decline. Even if the firm's EPS declined 10% to \$3.33 the payout ratio would increase to only 21.6%. If better than expected earnings are experienced, the firm can declare the extra dividend to share this wealth with stockholders.

■ Spreadsheet Exercise

The answer to Chapter 12's Rock-O-Corporation stockholder's equity section spreadsheet problem is located in the Instructor's Resource Center at www.prenhall.com/irc.

■ A Note on Web Exercises

A series of chapter-relevant assignments requiring Internet access can be found at the book's Companion Website at <http://www.prenhall.com/gitman>. In the course of completing the assignments students access information about a firm, its industry, and the macro economy, and conduct analyses consistent with those found in each respective chapter.

