

P12-1

a. Monthly interest rate is .005833.

Date	Cash Payment	Interest expense	Principal Decrease	Unpaid Principal
1/1/2003				\$280,000.00
2/1/2003	\$1,864.80	\$1,633.24	\$231.56	\$279,768.44
3/1/2003	\$1,864.80	\$1,631.89	\$232.91	\$279,535.53
4/1/2003	\$1,864.80	\$1,630.53	\$234.27	\$279,301.26

b. Building 350,000
 Cash 70,000
 Mortgage payable 280,000

c. Mortgage payable 231.56
 Interest expense 1,633.24
 Cash 1,864.80

d. Total payments: $1,864.80 \times 360 =$ \$671,328
 Amount borrowed: 280,000
 Interest: \$391,328

P12-2

a. Cash 10,000,000
 Bonds payable 10,000,000

(to record sale of bonds on January 1, 2004)

b. Interest expense 400,000
 Cash 400,000

(to record interest payment on July 1, 2004)

c. Since the bonds were issued at par, the book value on December 31, 2006, will be equal to the face value of \$10,000,000. The bonds are accounted for throughout their life with the interest rate implied on the date of the initial sale. Since the bonds were issued at par value, this is the coupon rate of 8%. No adjustments are made for the discrepancy between the book value and the economic value throughout the life of the bond.

d. The most likely cause of the market value of the bonds falling below the face value would be an increase in market interest rates. As market interest

rates rise, the present value of the future cash flows on the bond falls, causing the market value of the bonds to fall. Other causes can be an increase in the perceived risk of the individual bond as a result of downgrading by bond rating agencies and other negative news related to the company. This will increase the required return of investors in the bond, decreasing its present value.

e. Gerry will accrue the interest payment to be made on January 1, 2007:
 Interest expense 400,000
 Interest payable 400,000

No accounting adjustment will be made related to the decrease in the market value of the bonds.

f. If Gerry retires the bonds by purchasing them on the open market, the company will pay \$9,875,200 to retire the debt of \$10,000,000. The entry to retire the bonds will be:

Bonds payable 10,000,000
 Cash 9,875,200
 Gain on retirement of bonds 124,800

g. The gain on retirement of bonds will be reported as an extraordinary item, which will increase Gerry's reported net income. The retirement of bonds will reduce the outstanding liabilities on the balance sheet. The company's debt-to-equity ratio will decrease.

h. Because GAAP ignore the change in the market value of the bonds probably caused by an increase in market interest rates, a company can close the disparity between the book value and the market value by engaging in a transaction. This will result in an accounting "gain." Companies sometimes retire bonds in order to realize the gain on their books. However, they may be engaging in transactions that are not in the best interest of stockholders in order to do so. Companies may borrow money at higher interest rates to execute the retirement. They pay investment bankers fees to execute the borrowing and retirement transactions. They may re-issue bonds at higher rates of interest, locking in higher future interest costs. All of these transactions impose economic losses on companies' stockholders.

P12-3

a. Noncurrent liabilities: \$2,254,000,000 = 23.7%
 Total equity 9,513,000,000

b. Lease payable 2,877,794
 Cash 2,877,794
 (to record lease payment on 1/2/2000)

c.	Beginning lease obligation		\$ 12,000,000
	<u>Payment on 1/2/2000</u>		<u>(2,877,794)</u>
	Lease obligation on 1/2/2001	\$	9,122,206
	 Payment on 1/2/2001		\$ 2,877,794
	<u>Interest at 10% (\$9,122,206 × .10)</u>		<u>(912,221)</u>
	Principal reduction		\$ 1,965,573
	Interest expense	912,221	
	Lease payable	1,965,573	
	Cash		2,877,794

d. The income statement will show an expense for interest of \$912,221. It will also show depreciation expense of 1/5 (\$12,000,000), assuming straight-line depreciation.

e.	Noncurrent liabilities before capital lease	\$2,254,000,000
	<u>Capital lease obligation (12,000,000 – 2,877,794)</u>	<u>9,122,206</u>
	Noncurrent liabilities after capital lease	\$2,263,122,206
	 Noncurrent liabilities	\$2,263,122,206
	/ Total equity	9,513,000,000
	= 23.8%	

Coca-Cola's debt-equity ratio has barely been affected by the lease. There should be no impact on the company's ability to obtain additional financing. Instructors can use this as an opportunity to point out that, for a company the size of Coca-Cola, a multi-million dollar addition to liabilities has very little impact on the debt ratio. It would require a \$95 million lease to increase the debt-equity ratio one full percentage point.

P12-4

a. The most likely cause of the market value of the bonds falling below the face value would be an increase in market interest rates. As market interest rates rise, the present value of the future cash flows on the bond falls, causing the market value of the bonds to fall. Other causes can be an increase in the perceived risk of the individual bond as a result of downgrading by bond rating agencies and other negative news related to the company. This will increase the required return of investors in the bond, decreasing its present value.

b.	Cash	87,538	
	Discount on bonds payable	12,462	
	Bonds Payable		100,000

(to record issuance of 100,000 face value 8% bonds at a discount)

c.	From	To	Beginning Balance	Interest Expense	Coupon Payment	Discount Amortn	Ending Balance
1/1/01	6/30/01		\$87,538.00	\$4,376.90	\$4,000.00	\$376.90	\$87,914.90
7/1/01	12/31/01		87,914.90	4,395.75	4,000.00	395.75	88,310.65
1/1/02	6/30/02		88,310.65	4,415.53	4,000.00	415.53	88,726.18
7/1/02	12/31/02		88,726.18	4,436.31	4,000.00	436.31	89,162.49
1/1/03	6/30/03		89,162.49	4,458.12	4,000.00	458.12	89,620.61
7/1/03	12/31/03		89,620.61	4,481.03	4,000.00	481.03	90,101.64
1/1/04	6/30/04		90,101.64	4,505.08	4,000.00	505.08	90,606.72
7/1/04	12/31/04		90,606.72	4,530.34	4,000.00	530.34	91,137.06
1/1/05	6/30/05		91,137.06	4,556.85	4,000.00	556.85	91,693.91
7/1/05	12/31/05		91,693.91	4,584.70	4,000.00	584.70	92,278.61
1/1/06	6/30/06		92,278.61	4,613.93	4,000.00	613.93	92,892.54
7/1/06	12/31/06		92,892.54	4,644.63	4,000.00	644.63	93,537.16
1/1/07	6/30/07		93,537.16	4,676.86	4,000.00	676.86	94,214.02
7/1/07	12/31/07		94,214.02	4,710.70	4,000.00	710.70	94,924.72
1/1/08	6/30/08		94,924.72	4,746.24	4,000.00	746.24	95,670.96
7/1/08	12/31/08		95,670.96	4,783.55	4,000.00	783.55	96,454.51
1/1/09	6/30/09		96,454.51	4,822.73	4,000.00	822.73	97,277.25
7/1/09	12/31/09		97,277.25	4,863.86	4,000.00	863.86	98,141.10
1/1/10	6/30/10		98,141.11	4,907.05	4,000.00	907.05	99,048.15
7/1/10	12/31/10		99,048.15	4,951.85	4,000.00	951.85	100,000.00
Totals				\$92,462.00	80,000.00	12,462.00	

Note: Interest expense and discount numbers of last payment have been adjusted slightly.

d.	Interest expense	4,376.90	
	Cash		4,000.00
	Discount on bonds payable		376.90

(to record interest payment and discount amortization on 6/30/01)

e.	Bonds payable	\$100,000.00
	Less: Discount on bonds payable	<u>(11,689.35)</u>
	Net bond liability	\$ 88,310.65

f. Assuming no change in market interest rates, the economic value of the bond will be equal to the net bond liability of \$88,310.65.

g. On 1/1/11, both the economic value of the bond and the maturity value of the bond will be equal to the present value of the principal payment of \$100,000.00.

h.	Bonds payable	100,000.00	
	Cash		100,000.00
	(to retire bonds on 1/1/11)		

P12-5

a. If market rates increase to 12%, the present value of the bonds will decline. The economic value will be equal to the present value of the three remaining interest payments plus the present value of the principal repayment, discounted at a semi-annual rate of 6%.

$$PV = \frac{(4,000)}{(1.06)} + \frac{(4,000)}{(1.06)^2} + \frac{(4,000)}{(1.06)^3} + \frac{(100,000)}{(1.06)^3}$$

$$= (3,773.58) + (3,559.99) + (3,358.52) + (83,963.06) = (94,655.13)$$

b. GAAP for long-term liabilities assumes the interest rates in effect when the transaction was entered into. No adjustment is made for the change in the economic value of the bonds due to the increase in market interest rates.

c. If O'Brien purchased the bonds in the open market, the company would pay \$94,655.13 to retire bonds with a book value of \$97,277.23, resulting in an accounting gain of \$2,622.10. The entry would be:

Bonds payable		100,000.00	
Discount on bonds payable			2,722.77
Cash			94,655.13
Gain on retirement of bonds			2,622.10

(to record retirement of bonds by purchase on the open market)

d. Because GAAP ignore the change in the market value of the bonds probably caused by an increase in market interest rates, a company can close the disparity between the book value and the market value by engaging in a transaction. This will result in an accounting "gain." Companies sometimes retire bonds in order to book the gain on their books. However, they may be engaging in transactions that are not in the best interest of stockholders in order to do so. Companies may borrow money at higher interest rates to execute the retirement. They pay investment bankers fees to execute the borrowing and retirement transactions. They may re-issue bonds at higher rates of interest, locking in higher future interest costs. All of these transactions impose economic

losses on the companies' stockholders.

P12-6

a.	Bond payable	1,000.00	
	Cash		1,000.00
	(to record retirement of bond at maturity)		

b.	Net bond liability	\$956.70	
	Purchase price		935.00
	Gain		\$ 21.70

	Bond payable	1,000.00	
	Discount on bond payable		43.30
	Cash		935.00
	Gain on retirement of bonds		21.70

(to record retirement of bond by purchasing from bondholder)

c.	Net bond liability	\$ 949.24	
	Purchase price		1,000.00
	Loss		\$ (50.76)

	Bond payable	1,000.00	
	Loss on retirement of bond		50.76
	Cash		1,000.00
	Discount on bond payable		50.76

(to record retirement of bond by purchasing in the market)

d. GAAP rules require that any material gain or loss on retirement of debt be recorded as an extraordinary item in a company's income statement. Because accounting rules ignore the effects of changes in interest rates, there can be a disparity between book values and market value of bonds. In some cases, when interest rates rise, a company can record a significant gain by retiring bonds, whose economic values will fall relative to their accounting values. In some cases, companies borrow to retire bonds in order to show a gain on the books. This results in transaction costs and higher interest rates in the future for the company. FASB requires reporting gains and losses on the retirement of bonds as extraordinary to call attention to this artificial manipulation of income which is not in the best interest of the stockholders.

P12-7

a. The most likely reason the bond was issued at a premium is that mar-

ket interest rates have fallen below the coupon rate on the bond. Investors will be willing to pay the present value of the future cash flows at the market rate of interest. When interest rates fall, the present value of bond obligations rises.

b.	Cash	908,723.00	
	Bonds payable		800,000.00
	Premium on bonds payable		108,723.00
	(to record the issuance of 10% face value bonds)		

c.	From	To	Beginning Balance	Interest Expense	Coupon Payment	Premium Amortization	Ending Balance
	1/1/01	6/30/01	\$908,723.00	\$36,348.92	\$40,000.00	\$3,651.08	\$905,071.92
	7/1/01	12/31/01	905,071.92	36,202.88	40,000.00	3,797.12	901,274.80
	1/1/02	6/30/02	901,274.80	36,050.99	40,000.00	3,949.01	897,325.79
	7/1/02	12/31/02	897,325.79	35,893.03	40,000.00	4,106.97	893,218.82
	1/1/03	6/30/03	893,218.82	35,728.75	40,000.00	4,271.25	888,947.57
	7/1/03	12/31/03	888,947.57	35,557.90	40,000.00	4,442.10	884,505.47
	1/1/04	6/30/04	884,505.47	35,380.22	40,000.00	4,619.78	879,885.69
	7/1/04	12/31/04	879,885.69	35,195.43	40,000.00	4,804.57	875,081.12
	1/1/05	6/30/05	875,081.12	35,003.24	40,000.00	4,996.76	870,084.36
	7/1/05	12/31/05	870,084.36	34,803.37	40,000.00	5,196.63	864,887.73
	1/1/06	6/30/06	864,887.73	34,595.51	40,000.00	5,404.49	859,483.24
	7/1/06	12/31/06	859,483.24	34,379.33	40,000.00	5,620.67	853,862.57
	1/1/07	6/30/07	853,862.57	34,154.50	40,000.00	5,845.50	848,017.07
	7/1/07	12/31/07	848,017.07	33,920.68	40,000.00	6,079.32	841,937.75
	1/1/08	6/30/08	841,937.75	33,677.51	40,000.00	6,322.49	835,615.26
	7/1/08	12/31/08	835,615.26	33,424.61	40,000.00	6,575.39	829,039.87
	1/1/09	6/30/09	829,039.87	33,161.60	40,000.00	6,838.40	822,201.47
	7/1/09	12/31/09	822,201.47	32,888.06	40,000.00	7,111.94	815,089.53
	1/1/10	6/30/10	815,089.53	32,603.58	40,000.00	7,396.42	807,693.11
	7/1/10	12/31/10	807,693.13	32,306.87	40,000.00	7,693.13	800,000.00
	Totals			691,277.00	800,000.00	108,723.00	

Note: final interest expense has been adjusted slightly for rounding error.

d.	Interest expense	36,348.92	
	Premium on bonds payable	3,651.08	
	Cash		40,000.00
	(to record interest payment and premium amortization on 6/30/01)		

e.	Bonds payable	\$800,000.00
	Plus: Premium on bonds payable	<u>93,218.82</u>
	Net bond liability	\$893,218.82

f. Assuming market interest rates have not changed, the economic value of the bond on 12/31/02 will be the same as its book value of \$893,218.82.

g. The net bond liability and economic value should be equal to the face value of the bonds on 1/01/11, which is \$800,000.00.

h.	Bonds payable	800,000.00	
	Cash		800,000.00
	(to retire bonds on 1/01/11)		

P12-8

a. If market rates fall to 6%, the present value of the bonds will increase. The economic value will be equal to the present value of the six remaining interest payments plus the present value of the principal repayment, discounted at a semi-annual rate of 3%.

$$\begin{aligned}
 PV &= (40,000)/(1.03) + (40,000)/(1.03)^2 + (40,000)/(1.03)^3 + \\
 &+ (40,000)/(1.03)^4 + (40,000)/(1.03)^5 + (40,000)/(1.03)^6 + (800,000)/(1.03)^6 \\
 &= (38,834.95) + (37,703.84) + (36,605.57) + (35,539.48) + (34,504.35) + \\
 &+ (33,499.37) + (669,987.45) \\
 &= (886,675.01)
 \end{aligned}$$

b. Radley would pay \$886,865.08 to retire bonds with a book value of \$841,937.77, resulting in an accounting loss of \$44,927.31. The required entry would be:

	Bonds payable	800,000.00	
	Premium on bonds payable	41,937.77	
	Loss on retirement of bonds	44,927.31	
	Cash		886,865.08
	(to retire bonds by purchasing in the open market)		

c. Material gains or losses on retirement of bonds are reported in the income statement as an extraordinary item. The loss will reduce Radley's income before taxes by \$44,927.31. Total debt on the balance sheet will be reduced by \$841,937.77, assets will decrease by \$886,865.08 and equity will decrease by \$44,927.31.

P12-9

a.		(in billions)	
		1999	2000

Total liabilities and partners' capital	\$3,781,459	\$2,670,025
Less: Partners' capital	1,028,329	602,401
<u>Less: Current Liabilities</u>	<u>671,302</u>	<u>401,190</u>
Total noncurrent liabilities	\$2,081,828	\$1,666,434
Total noncurrent liabilities	<u>\$2,081,828</u>	<u>\$1,666,434</u>
Partners' capital	1,028,329	602,401
Debt/equity ratio	202%	277%

b. Redeemable preferred stock may possess more of the characteristics of debt than equity. Some redeemable preferred has redemption features where it is redeemable at the option of the holder. In such cases, its inclusion in equity is misleading and makes the debt/equity ratio appear healthier than it really is.

c. (in billions)		
Total partners' capital	\$1,028,329	\$602,401
Series A redeemable preferred interests	213,393	
Series B redeemable preferred interests	<u>145,575</u>	
Adjusted partners' capital	\$ 669,361	\$602,401
Total noncurrent liabilities	<u>\$2,081,828</u>	<u>\$1,666,434</u>
Adjusted partner's capital	\$669,361	\$602,401
Debt/equity ratio	311%	277%

d. Globalstar has a clearly deteriorating financial position. A debt/equity ratio close to 300% indicates that about 3/4ths of the assets are financed by debt. This places great risk on the creditors. On 4/30/01, Globalstar's auditors expressed a "going concern" opinion, stating "substantial doubt" about the company's "ability to continue as a going concern." For the year 2000, the company reported a loss of \$3.79 billion on revenue of \$3.7 million. Its loss in 1999 was \$180.4 million. The company reported on 4/3/01 that it "may be forced to seek protection" under bankruptcy laws. (The Wall Street Journal, 4/3/01)

P12-10

a.	Lease (rent) expense	10,000.00	
	Cash		10,000.00
b.	Leased asset	24,868.52	
	Lease payable		24,868.52
	(pv of a three year \$10,000 annuity at 10%)		
c.	Depreciation expense	8,289.51	
	Accumulated depreciation		8,289.51

(straight-line depreciation entry made at the end of each of the three years)

'01: Interest expense	2,486.85	
(10% of 24,868.52)		
Lease payable	7,513.15	
Cash		10,000.00
'02: Interest expense	1,735.54	
(10% of 17,355.37)		
Lease payable	8,264.46	
Cash		10,000.00
'03: Interest expense	909.09	
(10% of 9,090.91)		
Lease payable	9,090.91	
Cash		10,000.00

d. The total expense is the same: $3 \times \$10,000 = \$30,000$ rent expense under an operating lease and $\$24,868.52$ depreciation expense + $\$2,486.85$ + $1,735.54$ + $\$909.09$ interest expense = $\$30,000$ under capital lease treatment. Note that the timing of the expense over the three years and the labels attached are different.

P12-11

- Option 3 is the equivalent of a zero coupon bond.
- Option 2 is the equivalent of a mortgage.
- Option 1 is the equivalent of a bond sold at par value.
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$$\text{Option 1: PV} = (\$5,000)/(1.05) + (\$5,000)/(1.05)^2 + (\$5,000)/(1.05)^3 + (\$100,000)/(1.05)^3$$

$$= (\$5,000)/(1.05) + (\$5,000)/(1.1025) + (\$5,000)/(1.157) + (\$100,000)/(1.157)$$

$$= (\$4,761.90) + (\$4,535.15) + (\$4,321.52) + (\$86,430.42)$$

$$= \$100,000 \text{ (rounded)}$$

$$\text{Option 2: PV} = (\$36,720.83)/(1.05) + (\$36,720.83)/(1.05)^2 + (\$36,720.83)/(1.05)^3$$

$$= (\$36,720.83)/(1.05) + (\$36,720.83)/(1.1025) + (\$36,720.83)/(1.157)$$

$$= (\$34,972.22) + (\$33,306.88) + (\$31,737.97)$$

= \$100,000 (rounded)

Option 3: Amount due would be

First year interest	=	\$100,000 × .05	=	\$5,000.00
Second year interest	=	\$105,000 × .05	=	\$5,250.00
Third year interest	=	\$110,250 × .05	=	\$5,512.50
Principal due:				\$100,000.00
Total due:				\$115,762.50
PV = \$115,762.50 / (1.05) ³	=	\$115,762.50 / (1.157)	=	\$100,000

e.	Option 1: Cash	100,000	
	Loan payable		100,000
	Interest expense	5,000	
	Cash		5,000
	Option 2: Cash	100,000	
	Loan payable		100,000
	Interest expense	5,000	
	Loan payable	31,720.83	
	Cash		36,720.83
	Option 3: Cash	100,000	
	Loan payable		100,000
	Interest expense	5,000	
	Loan payable		5,000

f. Option 3 is the most risky. The lender must wait until the end of three years to get any money back.

g. Option 2 is the least risky. A portion of principal is being repaid in each of the three years.