

FAIR VALUE OPTION

Solutions

QUESTIONS FOR REVIEW OF KEY TOPICS

Question 1

SFAS No. 157 prioritizes the inputs companies should use when determining fair value. The highest and most desirable inputs, Level 1, are quoted market prices in active markets for identical assets or liabilities. Level 2 inputs are other than quoted prices that are observable, including quoted prices for similar assets or liabilities in active or inactive markets and inputs that are derived principally from observable related market data. Level 3 inputs, the least desirable, are inputs that reflect the entity's own assumptions about the assumptions market participants would use in pricing the asset or liability, developed based on the best information available in the circumstances.

Question 2

SFAS No. 157 governs determination of fair value. That Standard distinguishes among three levels of inputs to fair value determination, with level 1 being readily observable fair values (for example, from a securities exchange), level 2 inputs are other observable amounts (for example, quoted values for similar items or important inputs like interest rates), and level 3 inputs are unobservable, like the company's own assumptions. SFAS No. 157 requires disclosure of the amount of fair values based on each of these three classes of inputs.

Question 3

When a company elects the fair value option for held-to-maturity or available-for-sale investments, it simply reclassifies those investments as trading securities and accounts for them in that fashion.

Question 4

When a company elects the fair value option for an investment otherwise requiring the equity method, that investment is *not* reclassified as a trading security. Rather, the investment still appears on the balance sheet as an equity-method investment, but the amount that's accounted for at fair value is indicated in the balance sheet either parenthetically on a single line that includes the total amount of equity method investment or on a separate line. As with trading securities, unrealized gains and losses are included in earnings in the period in which they occur.

Question 5

Rising interest rates, other factors remaining the same, cause prices of fixed-rate securities to fall. For the investor in these securities, the price decline represents a loss; but for Cordova Tools, the debtor, the decline in the value of the liability is a gain. If Cordova has elected the fair value option for the bonds, it will report the gain on change in the fair value of the bonds in its income statement.

BRIEF EXERCISES

Brief Exercise 1

Because S&L elected the fair value option, it would reclassify this investment as trading securities and account for it in that fashion. Specifically, S&L reports its \$2,000 holding loss in 2009 earnings. When the fair value rises by \$7,000 in 2010, that amount is reported in 2010 earnings. S&L's journal entries for these transactions would be those used for other trading securities:

2009

December 27

Investment in Coca Cola shares	875,000	
Cash.....		875,000

December 31

Unrealized holding loss on investments	2,000	
Fair value adjustment (\$875,000 – 873,000)		2,000

2010

January 3

Cash (selling price).....	880,000	
Fair value adjustment (account balance).....	2,000	
Gain on sale of investments (to balance).....		7,000
Investment in Coca Cola shares (account balance)		875,000

Brief Exercise 2

Given Turner's election of the fair value option, the company would account for this investment similar to a trading security, while still preserving its classification as an equity method investment and showing it as a non-current asset on the balance sheet.

2009

January 2

Investment in ICA Company	10,000,000
Cash	10,000,000

December 30

Cash (40% x \$500,000)	200,000
Investment revenue	200,000

December 31

Fair value adjustment (\$11.5M – 10M)	1,500,000
Unrealized holding gain on investments	1,500,000

Note: A different approach to reach the same outcome would be for Turner to use equity-method accounting throughout the year, and then at the end of the year make whatever adjustment to fair value is necessary to adjust the investment account to fair value. Under that approach, Turner would recognize 40% of ICA's \$750,000 income (\$300,000) as investment income, they would not recognize investment income associated with ICA's dividend, and they would end up with an Investment account containing \$10,100,000 (\$10,000,000 + \$300,000 - \$200,000). They would need to make a fair value adjustment of \$1,400,000 (\$11,500,000 - \$10,100,000). So the total amount of income recognized would be \$1,700,000 (\$300,000 investment income + \$1,400,000 unrealized gain). Note that this alternative produces the same total amount of investment income as is produced above, \$1,700,000 (\$200,000 investment revenue + \$1,500,000 unrealized gain).

Brief Exercise 3

AI will report a gain when adjusting the bonds to fair value. A decrease in the fair value of a liability is a gain, just the opposite of a decrease in the value of an asset.

If the change in fair value is attributable to a change in the interest rate, the rate increased. This is because as interest rates rise, the value of a fixed rate instrument – like bonds – fall as occurred with AI's bonds.

EXERCISES

Exercise 1

Requirement 1

Electing the fair value option for held-to-maturity securities simply requires reclassifying those securities as trading securities. Therefore, this investment would be classified as a trading security in Tanner-UNF's balance sheet.

Requirement 2

	(\$ in millions)
Investment in bonds (face amount)	240
Discount on bond investment (difference)	40
Cash (price of bonds).....	200

Requirement 3

Cash (3% x \$240 million)	7.2	
Discount on bond investment (difference).....	.8	
Interest revenue (4% x \$200)		8.0

Requirement 4

The carrying value of the bonds is $\$240 - (\$40 - 0.8) = \$200.8$. Therefore, to adjust to the fair value of \$210, Tanner-UNF would need the following journal entry:

Fair value adjustment	9.2	
Unrealized holding gain on investments (\$210 - 200)		9.2

The Fair value adjustment is combined with the Investment in Bonds and Discount on bond investment accounts in the balance sheet.

Requirement 5

Tanner-UNF reports its investment in the December 31, 2009, balance sheet at its fair value of \$210 million, as required by the election of the fair value option.

Requirement 6

	(\$ in millions)
Cash (proceeds from sale)	190.0
Loss on sale of investments (to balance).....	20.0
Discount on bond investment (account balance)....	39.2
Fair value adjustment (account balance)	9.2
Investment in bonds (account balance)	240.0

Exercise 2

Requirement 1

Electing the fair value option for available-for-sale securities simply requires reclassifying those securities as trading securities. Therefore, this investment would be classified as a trading security in Sanborn's balance sheet.

Requirement 2

	(\$ in millions)
Purchase	
Investment in Jackson Industry shares.....	90
Cash	90
Net income	
No entry	
Dividends	
Cash (5% x \$60 million).....	3
Investment revenue	3
Adjusting entry	
Fair value adjustment (\$98 - 90 million)	8
Unrealized holding gain on investments.....	8

Requirement 3

Investment revenue (dividends)	\$ 3,000
Unrealized holding gain on investments (from adjusting entry)	<u>8,000</u>
Total effect on 2009 net income	\$11,000

Exercise 3

Requirement 1

Electing the fair value option for investments otherwise requiring the equity method entails using the same basic accounting approach that is used for trading securities. However, the investments still will be classified as equity-method investments and shown either on the same line of the balance sheet as equity-method investments (but with the amount at fair value indicated parenthetically) or on a separate line of the balance sheet.

Requirement 2

Purchase	(\$ in millions)	
Investment in Nursery Supplies shares	56	
Cash		56
Net income		
No entry.		
Dividends		
Cash (30% x 8 million shares x \$1.25)	3	
Investment revenue		3
Adjusting entry		
Unrealized holding loss on investments (\$56 – 52 million)	4	
Fair value adjustment		4

Note: A different approach to reach the same outcome would be for Florists to use equity-method accounting throughout the year, and then at the end of the year make whatever adjustment to fair value is necessary to adjust the investment account to fair value. Under that approach, Florists would recognize 30% of Nursery's \$40 million of income (\$12 million) as investment income, they would not recognize investment income associated with Nursery's dividend, and they would end up with an Investment account containing \$65 (\$56 million + \$12 million - \$3 million). They would need to make a fair value adjustment of \$13 million (\$65 million - \$52 million). So the total amount of loss recognized would be \$1 million (\$12 million investment income - \$13 million unrealized loss). Note that this alternative produces the same total amount of investment loss as is produced above, \$1 million (\$12 million investment revenue - \$13 million unrealized loss).

Exercise 4

Requirement 1

At January 1, 2009, the book value of the bonds was the initial issue price, \$739,814,813. The liability, though, was increased when Federal recorded interest during 2009:

June 30, 2009

Interest expense (6% x \$739,814,813)	44,388,889	
Discount on bonds payable (difference)		388,889
Cash (5.5% x \$800,000,000)		44,000,000

December 31, 2009

Interest expense (6% x [\$739,814,813 + 388,889])	44,412,222	
Discount on bonds payable (difference)		412,222
Cash (5.5% x \$800,000,000)		44,000,000

Reducing the discount *increases* the book value of the bonds:

Jan. 1, 2009, book value	\$739,814,813
Increase from discount amortization (\$388,889 + 412,222)	<u>801,111</u>
December 31, 2009, book value (amortized initial amount)	\$740,615,924

Comparing the amortized initial amount at December 31, 2009, with the fair value on that date provides the Fair value adjustment balance needed:

December 31, 2009, book value (amortized initial amount)	\$740,615,924
December 31, 2009, fair value	<u>730,000,000</u>
<i>Fair value adjustment</i> balance needed: debit/(credit)	\$ 10,615,924

Federal would record the \$10,615,924 as a gain in the 2009 income statement:

December 31, 2009

Fair value adjustment	10,615,924
Unrealized holding gain	10,615,924

Note: A decrease in the value of an asset is a loss; a decrease in the value of a liability is a gain.

Exercise 4 (continued)

In the balance sheet, the bonds are reported among long-term liabilities at their \$730,000,000 fair value:

Bonds payable	\$800,000,000
Less: Discount on bonds payable	<u>(59,384,076)</u>
December 31, 2009, book value (amortized initial amount)	\$740,615,924
Less: Fair value adjustment	<u>(10,615,924)</u>
December 31, 2009, fair value	\$730,000,000

Requirement 2

If the fair value at December 31, 2010, is \$736,000,000 a year later, Federal needs to compare that amount with the amortized initial measurement on that date. That amount was increased when Federal recorded interest during 2010:

June 30, 2010

Interest expense (6% x [\$739,814,813 + 388,889 + 412,222])	44,436,955
Discount on bonds payable (difference)	436,955
Cash (5.5% x \$800,000,000)	44,000,000

December 31, 2010

Interest expense (6% x [\$739,814,813 + 388,889 + 412,222 + 436,955])	44,463,173
Discount on bonds payable (difference)	463,173
Cash (5.5% x \$800,000,000)	44,000,000

Reducing the discount *increases* the book value of the bonds:

December 31, 2009, book value (amortized initial amount)	\$740,615,924
Increase from discount amortization (\$436,955 + 463,173)	<u>900,128</u>
December 31, 2010, book value (amortized initial amount)	\$741,516,052

Exercise 4 (concluded)

Comparing the amortized initial amount at December 31, 2010, with the fair value on that date provides the Fair value adjustment balance needed:

December 31, 2010, book value (amortized initial amount)	\$741,516,052
December 31, 2010, fair value	<u>(736,000,000)</u>
Fair value adjustment balance needed: debit/(credit)	\$ 5,516,052
Less: Current fair value adjustment debit/(credit)	<u>10,615,924</u>
Change in fair value adjustment	\$ (5,099,872)

Federal records the \$5,099,872 as a loss in the 2010 income statement:

December 31, 2010

Unrealized holding loss	5,099,872	
Fair value adjustment		5,099,872

Note: An increase in the value of an asset is a gain; an increase in the value of a liability is a loss.

In the balance sheet, the bonds are reported among long-term liabilities at their \$736,000,000 fair value:

Bonds payable	\$800,000,000
Less: Discount on bonds payable	<u>(58,483,948)</u>
December 31, 2010, book value (amortized initial amount)	\$741,516,052
Less: Fair value adjustment	<u>(5,516,052)</u>
December 31, 2010, fair value	\$736,000,000

Exercise 5

Requirement 1

June 30, 2009

Interest expense (5% x \$184 million)	9,200,000	
Discount on bonds payable (difference)		1,200,000
Cash (4% x \$200 million)		8,000,000

Requirement 2

December 31, 2009

Interest expense (5% x [\$184 million + 1.2 million])	9,260,000	
Discount on bonds payable (difference)		1,260,000
Cash (4% x \$200 million)		8,000,000

Requirement 3

The interest entries increased the book value from \$184,000,000 to \$186,460,000. To increase the book value to \$188,000,000, Rapid needed the following entry:

Unrealized holding loss	1,540,000	
Fair value adjustment (\$188,000,000 – 186,460,000)		1,540,000

Exercise 6

Requirement 1

If the bonds are not traded on a market exchange, their fair market value is not readily observable. As a result, the next most preferable way to determine fair value according to *SFAS No. 157* is to calculate the fair value as the present value of the remaining cash flows discounted at the current interest rate. At December 31, **18** of the original 20 payments remain. If the current interest rate is 9% (**4.5%** semi-annually), as we're assuming now, that present value would be \$751,360:

				Present Values
Interest	\$ 32,000 [¥]	x	12.15999 [*]	= \$389,120
Principal	\$800,000	x	0.45280 [†]	= <u>362,240</u>
Present value of the bonds				\$751,360

[¥] $(8\% / 2) \times \$800,000$

^{*} Present value of an ordinary annuity of \$1: $n = 18$, $i = 4.5\%$.

[†] Present value of \$1: $n = 18$, $i = 4.5\%$.

Requirement 2

June 30, 2009

Interest expense (5% x \$700,302)	35,015	
Discount on bonds payable (difference)		3,015
Cash (4% x \$800,000)		32,000

Requirement 3

December 31, 2009

Interest expense (5% x [\$700,302 + 3,015])	35,166	
Discount on bonds payable (difference)		3,166
Cash (4% x \$800,000)		32,000

Exercise 6 (concluded)

Requirement 4

The interest entries increased the book value from \$700,302 to \$738,483:

\$700,302	January 1 book value
3,015	June 30 increase
<u>3,166</u>	December 31 increase
\$706,483	December 31 book value

To increase the book value to \$751,360, Essence needs the following entry:

Unrealized holding loss	44,877
Fair value adjustment (\$751,360 – \$706,483)	44,877

PROBLEMS

Problem 1

Note: Because Fuzzy Monkey elected the fair value option, these investments will be reclassified as trading securities and accounted for by that approach. Therefore, the answers to Requirements 1-5 are the same as those to Problem 12-2.

Requirement 1	(\$ in millions)
Investment in bonds (face amount)	80
Discount on bond investment (difference).....	14
Cash (price of bonds)	66

Requirement 2	
Cash (4% x \$80 million).....	3.20
Discount on bond investment (difference)10
Interest revenue (5% x \$66)	3.30

Requirement 3	
Cash (4% x \$80 million).....	3.20
Discount on bond investment (difference)11
Interest revenue (5% x [\$66 + 0.1])	3.31

Requirement 4

Fuzzy Monkey reports its investment in the December 31, 2009, balance sheet at its fair value, \$70 million in this case. For investments in trading securities, changes in market values, and thus market returns, provide an indication of management's success in deciding when to acquire the investment, when to sell it, whether to invest in fixed-rate or variable-rate securities, and whether to invest in long-term or short-term securities.

To determine the journal entry that Fuzzy Monkey must make, we first need to determine the investment's amortized cost (or book value) at the end of the year:

Investment in bonds	\$80.00
Less: Discount on bond investment (\$14 – .10 – .11 million)	<u>13.79</u>
Amortized cost	\$66.21

Problem 1 (concluded)

Then, to record it at fair value, we increase the investment by $\$70 - 66.21 = \3.79 million:

	(\$ in millions)
Fair value adjustment.....	3.79
Unrealized holding gain on investments ($\$70 - 66.21$)	3.79

Because these are trading securities, the unrealized holding gain of \$3.79 would be recognized in Fuzzy Monkey's 2009 income statement.

Requirement 5

Fuzzy Monkey's 2009 statement of cash flows would be affected as follows:

Operating cash flows: Cash inflow from interest of $\$3.2 + \$3.2 = \$6.4$. (Note: if Fuzzy Monkey prepares an indirect method statement of cash flows, they would have included in net income interest revenue of $\$3.30 + \$3.31 = \$6.61$ and an unrealized holding gain of \$3.79, totaling \$10.4, so would have to include an adjustment of $\$6.4 - \$10.4 = (\$4.0)$ to get from net income to the correct operating cash flow.)

Investing cash flows: Cash outflow from purchasing investments of \$66.

Requirement 6

The answers to requirements 1-5 would not differ if the investment qualified for treatment as a held-to-maturity investment, because Fuzzy Monkey's choice of the fair value option still requires reclassification of the investment as trading securities.

Problem 2

Requirement 1

Purchase	(\$ in millions)	
Investment in Lavery Labeling shares	324	
Cash		324

Net income

No entry. It's not necessary to account for Runyan's portion of Lavery's net income, or to make adjustments to account for the difference between the fair value and book value of Lavery's depreciable assets when Runyan made its investment, because Runyan elected the fair value option.

Dividends

Cash (10 million shares x \$2)	20	
Investment revenue		20

Adjusting entry

Unrealized holding loss on investments ([10 million shares x \$31] – \$324 million)	14	
Fair value adjustment		14

Requirement 2

Because Runyan is accounting for the Lavery investment under the fair value option, the unrealized holding loss on investments would be included in 2009 net income. Therefore, total effect on net income would be \$20 million investment revenue – \$14 million unrealized holding loss, or \$6 million.

Note: A different way to reach the same outcome would be to credit Investment in Lavery Labeling shares when dividends are received as we would do under the equity method, which would reduce that investment from \$324 million to \$304 million, and then to recognize an unrealized holding gain of \$6 million (\$310 million – 304 million) in the fair value adjusting entry.

Problem 3

Requirement 1

	(\$ in millions)
Purchase	
Investment in Lavery Labeling shares.....	324
Cash	324
Net income	
No entry	
Dividends	
Cash (10 million shares x \$2)	20
Investment revenue.....	20
Adjusting entry	
Unrealized holding loss on investments	
([10 million shares x \$31] – \$324 million)	14
Fair value adjustment	14

Because Runyan is accounting for the Lavery investment under the fair value option, the unrealized holding loss on investments is included in 2009 net income. Therefore, the total effect on net income would be the \$20 million dividend – the \$14 unrealized holding loss, or \$6 million. The investment would be shown in the balance sheet at its fair value of \$310 million.

Problem 3 (continued)

Requirement 2

	(\$ in millions)
Purchase	
Investment in Lavery Labeling shares	324
Cash	324
Net income	
Investment in Lavery Labeling shares (30% x \$160 million)	48
Investment revenue	48
Dividends	
Cash (10 million shares x \$2)	20
Investment in Lavery Labeling shares	20
Depreciation adjustment	
Investment revenue ($[\$80 \text{ million} \times 30\%] \div 6 \text{ years}$) †	4
Investment in Lavery Labeling shares	4

†Calculations:

	Investee Net Assets	Net Assets Purchased	Difference Attributed to:
	↓	↓	↓
Cost		\$324	
		}	<i>Goodwill:</i> \$60
Fair value:	\$880* x 30% = \$264		
		}	<i>Undervaluation of depr. assets:</i> \$24
Book value:	\$800 x 30% = \$240		

*[\$800 + 80] = \$880

Problem 3 (concluded)

Note: After the preceding journal entries are recorded, the balance in the Lavery Labeling investment account would be:

Investment in Lavery Labeling shares

		(\$ in millions)
Cost	324	
Share of income	48	
		20 Dividends
		4 Depreciation adjustment
<u>Balance</u>	<u>348</u>	

At December 31, 2009, the fair value of that investment is \$310 million (= 10 million shares x \$31/share), implying the need for the following adjusting entry to adjust the carrying value of the investment to fair value:

	(\$ in millions)
Unrealized holding loss on investments	
([10 million shares x \$31] – \$348 million).....	38
Fair value adjustment.....	38

Because Runyan is accounting for the Lavery investment under the fair value option, the unrealized holding loss on investments is included in 2009 net income. Therefore, the total effect on net income would be \$48 million for Runyan’s share of Lavery income – the \$4 million depreciation adjustment – the \$38 million unrealized holding loss, yielding a total of \$6 million of income. The investment would be shown in the balance sheet at its fair value of \$310 million.

Note that the income effect and the carrying value on the balance sheet are the same in requirements 1 and 2.

Problem 4

Requirement 1

Bonds' Fair Value at January 2, 2009:

Interest	\$4,500 [¥]	x	14.21240 [*]	=	\$ 63,956
Principal	\$150,000	x	0.50257 ^{**}	=	<u>75,386</u>
<i>Present value (price) of the investment</i>					\$139,342

[¥] (6% / 2) x \$150,000

^{*} present value of an ordinary annuity of \$1: n=20, i=3.5% (=7%/2)

^{**} present value of \$1: n=20, i=3.5% (=7%/2)

Investment in bonds (face amount)	150,000
Discount on bond investment (difference).....	10,658
Cash (price of bonds)	139,342

Requirement 2

June 30, 2009

Cash (6%/2 x \$150,000)	4,500
Discount on bond investment (difference)	377
Interest revenue (7%/2 x [\$150,000 – 10,658])	4,877

December 31, 2009

Cash (6%/2 x \$150,000)	4,500
Discount on bond investment (difference)	390
Interest revenue (7%/2 x [\$150,000 – {\$10,658 – 377}])	4,890

Note: For held-to-maturity investments, there are no adjustments to fair value.

Problem 4 (continued)

Requirement 3

June 30, 2009

Cash (6%/2 x \$150,000)	4,500
Discount on bond investment (difference).....	377
Interest revenue (7%/2 x [\$150,000 - \$10,658])	4,877

Bonds' Fair Value at June 30, 2009:

Interest \$ 4,500[¥] x 13.13394 * = \$ 59,103

Principal \$150,000 x 0.47464 ** = 71,196

Present value (price) of the investment \$130,299

[¥] (6% / 2) x \$150,000

* present value of an ordinary annuity of \$1: n=19, i=4% (=8%/2)

** present value of \$1: n=19, i=4% (=8%/2)

January 1 book value and fair value <u>initial cost</u>	\$139,342	
Increase from discount amortization	<u>377</u>	
June 30 book value (amortized initial cost)	\$139,719	

Comparing ~~that the amortized initial cost amount~~ with the fair value of the bonds on that date provides the amount needed to adjust the investment to its fair value.

June 30 book value (amortized initial cost)	\$139,719	
June 30 fair value	<u>130,299</u>	
Fair value adjustment needed	\$ 9,420	

Unrealized holding loss on investments (\$130,299 – 139,719) ...	9,420
Fair value adjustment	9,420

Problem 4 (concluded)

December 31, 2009

Cash (6%/2 x \$150,000)	4,500
Discount on bond investment (difference)	390
Interest revenue (7%/2 x [\$150,000 – {\$10,658 - \$377}]) ..	4,890

Bonds' Fair Value at December 31, 2009:

Interest	\$4,500 [¥] x	13.18968 *	= \$ 59,354
Principal	\$150,000 x	0.53836 **	= <u>80,754</u>
<i>Present value (price) of the investment</i>			<u>\$140,108</u>

[¥] (6% / 2) x \$150,000

* present value of an ordinary annuity of \$1: n=18, i=3.5% (=7%/2)

** present value of \$1: n=18, i=3.5% (=7%/2)

June 30 book value and fair value <u>amortized initial cost</u>	\$139,719
Increase from discount amortization	<u>390</u>
Dec. 31 book value (amortized initial cost)	\$140,109

Comparing ~~that amount~~ the amortized initial cost with the fair value of the bonds on that date provides the amount needed to adjust the investment to its fair value.

Dec. 31 book value (amortized initial cost)	\$140,109
Dec. 31 fair value	<u>140,108</u>
Fair value adjustment balance needed: debit/(credit)	\$ (1)
Less: Current fair value adjustment debit/(credit)	<u>(9,420)</u>
Change in fair value adjustment <u>needed</u>	\$ 9,419

Fair value adjustment	9,419
Unrealized holding gain on investments (140,108 – 130,689) _____	
9,419	

Problem 5

Requirement 1

Interest	\$ 32,000 x 17.15909 =	\$549,091
Principal	\$800,000 x 0.14205 =	<u>113,640</u>
		\$662,731

$$4\% \times \$800,000 = \$32,000$$

January 1

Cash	662,731
Discount on bonds payable	137,269
Bonds payable	800,000

Requirement 2

June 30

Interest expense (5% x \$662,731)	33,137
Discount on bonds payable (difference)	1,137
Cash (4% x \$800,000)	32,000

Requirement 3

December 31

Interest expense (5% x [\$662,731 + 1,137])	33,193
Discount on bonds payable (difference)	1,193
Cash (4% x \$800,000)	32,000

Requirement 4

The interest entries increased the book value from \$662,731 to \$665,061. To increase the book value to \$668,000, Rapid needed the following entry:

Unrealized holding loss	2,939
Fair value adjustment (\$668,000 – 665,061)	2,939

Problem 6

Requirement 1

At January 1, the book value of the bonds was the initial issue price, \$331,364. The liability, though, was increased by 3 months' interest that has accrued for the quarter but has not been paid. This is recorded in an adjusting entry in preparation for the quarterly financials:

Interest expense (5% x \$331,364 x 3/6)	8,284	
Discount on bonds payable (difference)		284
Accrued interest payable (4% x \$400,000 x 3/6)		8,000

Note: None of the interest will be paid until June 30.

Reducing the discount increases the book value of the bonds:

January 1 book value and fair value	\$331,364
Increase from discount amortization	284
Increase from accrued interest payable*	<u>8,000</u>
March 31 book value (amortized initial amount)	\$339,648

*Interest payable is considered part of the book value of the bonds.

Comparing the amortized initial amount at December 31, 2009, with the fair value on that date provides the Fair value adjustment balance needed:

March 31 book value (amortized initial amount)	\$339,648
March 31 fair value	<u>350,000</u>
<i>Fair value adjustment</i> balance needed: debit/(credit)	\$ (10,352)

Appling would record the \$10,352 as a loss in the 2009 first quarter income statement:

Unrealized holding loss	10,352	
Fair value adjustment		10,352

Note: An increase in the value of an asset is a gain; an increase in the value of a *liability* is a loss.

Problem 6 (continued)

Requirement 2

If the fair value on March 31 is \$350,000, Appling needs to compare that amount with the amortized initial measurement on that date. That amount was increased when Appling recorded interest on June 30:

Interest expense (5% x \$331,364* x 3/6)	8,284	
Accrued interest payable (balance)	8,000	
Discount on bonds payable (difference)		284
Cash (4% x \$400,000)		16,000

* Because interest is compounded semi-annually on bonds, this amount is not increased by the discount amortization until June 30.

March 31 book value (amortized initial amount)	\$339,648
Increase from discount amortization	284
Decrease from payment of accrued interest payable*	<u>(8,000)</u>
June 30 book value (amortized initial amount)	\$331,896

*Interest payable is considered part of the book value of the bonds.

Comparing the amortized initial amount at June 30 with the fair value on that date provides the Fair value adjustment balance needed:

June 30 book value (amortized initial amount)	\$331,896
June 30 fair value	<u>340,000</u>
Fair value adjustment balance needed: debit/(credit)	\$ (8,104)
Less: Current fair value adjustment debit/(credit)	<u>(10,352)</u>
Change in fair value adjustment	\$ 2,284

Appling would record the \$2,284 as a gain in the 2009 second quarter income statement:

Fair value adjustment	2,284	
Unrealized holding gain		2,284

Problem 6 (continued)

Requirement 3

If the fair value on June 30 is \$340,000, Appling needs to compare that amount with the amortized initial measurement on that date. That amount, though, has increased by 3 months' interest that has accrued for the quarter but has not been paid. This is recorded in an adjusting entry in preparation for the quarterly financials:

Interest expense (5% x [\$331,364 + 284 + 284] x 3/6)	8,298	
Discount on bonds payable (difference)		298
Accrued interest payable (8% x \$400,000 x 1/4)		8,000

June 30 book value (amortized initial amount)	\$331,896
Increase from discount amortization	298
Increase from accrued interest payable*	<u>8,000</u>
October 31 book value (amortized initial amount)	\$340,194

*Interest payable is considered part of the book value of the bonds.

October 31 book value (amortized initial amount)	\$340,194
October 31 fair value	<u>335,000</u>
Fair value adjustment balance needed: debit/(credit)	\$ 5,194
Less: Current fair value adjustment debit/(credit)	<u>(8,104)</u>
Change in fair value adjustment	\$(13,298)

Appling would record the \$13,298 as a gain in the 2009 third quarter income statement:

Fair value adjustment	13,298	
Unrealized holding gain		13,298

Problem 6 (continued)

Requirement 4

If the fair value on December 31 is \$342,000, Appling needs to compare that amount with the amortized initial measurement on that date. That amount was increased when Appling recorded interest on December 31:

Interest expense (5% x [\$331,364 + 284 + 284] x 3/6)	8,298	
Accrued interest payable (balance)	8,000	
Discount on bonds payable (difference)		298
Cash (4% x \$400,000)		16,000
October 31 book value (amortized initial amount)		\$340,194
Increase from discount amortization		298
Decrease from payment of accrued interest payable*		<u>(8,000)</u>
December 31 book value (amortized initial amount)		\$332,492

*Interest payable is considered part of the book value of the bonds.

December 31 book value (amortized initial amount)		\$332,492
December 31 fair value		<u>342,000</u>
Fair value adjustment balance needed: debit/(credit)		\$ (9,508)
Less: Current fair value adjustment debit/(credit)		<u>5,194</u>
Change in fair value adjustment		\$(14,702)

Appling would record the \$14,702 as a loss in the 2009 income statement:

Unrealized holding loss	14,702	
Fair value adjustment		14,702

Problem 6 (continued)

Appling's 2009 income statement will include the interest expense for all four quarters as well as the gains and losses from adjusting to fair value:

Interest expense, 1st quarter	\$ 8,284
Interest expense, 2nd quarter	8,284
Interest expense, 3rd quarter	8,298
Interest expense, 4th quarter	8,298
Loss, 1st quarter	10,352
Gain, 2nd quarter	(2,284)
Gain, 3rd quarter	(13,298)
Loss, 4th quarter	<u>14,702</u>
Decrease in 2009 earnings	\$42,636

The same result can be reached by comparing fair values at the beginning and end of the year and including semi-annual interest amounts rather than quarter-by-quarter:

If the fair value on December 31 is \$342,000, Appling needs to compare that amount with the amortized initial measurement on that date. The liability, though, was increased when Appling recorded interest on June 30 and December 31:

Interest expense (5% x \$331,364)	16,568	
Discount on bonds payable (difference)		568
Cash (4% x \$400,000)		16,000
Interest expense (5% x [\$331,364 + 568])	16,597	
Discount on bonds payable (difference)		597
Cash (4% x \$400,000)		16,000
January 1 book value		\$331,364
Increase from discount amortization (\$568 + 597)		<u>1,165</u>
December 31 book value (amortized initial amount)		\$332,529
December 31 fair value		<u>342,000</u>
Fair value adjustment balance needed: debit/(credit)		\$ (9,471)

Problem 6 (concluded)

Appling would record the \$9,471 as a loss in the 2009 income statement:

Unrealized holding loss	9,471	
Fair value adjustment		9,471

Appling's 2009 income statement will include the interest expense for June 30 and December 31 as well as the loss from adjusting to fair value:

Interest expense, June 30	\$16,568
Interest expense, December 31	16,597
Unrealized holding loss	<u>9,471</u>
Decrease in 2009 earnings	\$42,636