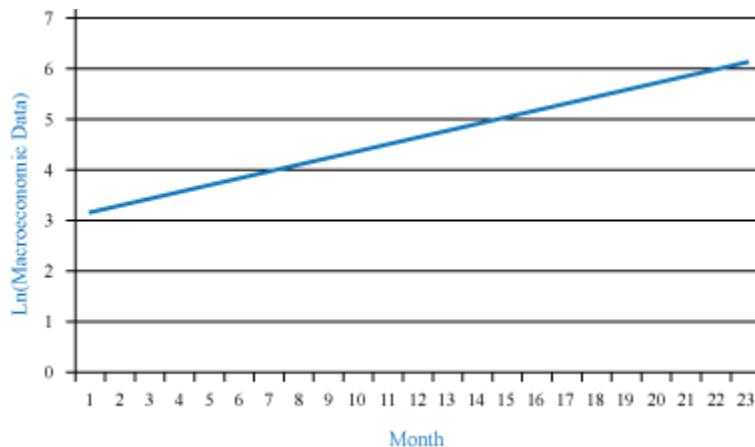


Question #1 of 60

B) the natural log of the dependent variable.

Explanation

Fisher should take the natural log of the dependent variable so that the data in Exhibit 1 are transformed and can be better modeled using a linear regression. From the plot, it appears that the data follow a log-linear trend. If the natural log is taken of the dependent variable, the data will be more linear so that it is readily modeled in a regression. The transformed data will plot as follows:



For Further Reference:

Study Session 3, LOS 10.k, l

SchweserNotes: Book 1 p.158, 165

CFA Program Curriculum: Vol.1 p.338, 349

Study Session 3, LOS 11.a

SchweserNotes: Book 1 p.185

CFA Program Curriculum: Vol.1 p.405

Question #2 of 60

A) Serial correlation Durbin Watson

Explanation

The most likely problem in Fisher's regression of the emerging market data is that the error terms appear to be positively correlated in Exhibit 2. The first few error terms are positive, then negative, and then positive. This indicates serial correlation, which is common in trend models. As Fisher regresses the macroeconomic data against a time variable, she is using a trend model. In a trend model, the Durbin Watson statistic can be used to detect serial correlation.

For Further Reference:

Study Session 3, LOS 10.k

SchweserNotes: Book 1 p.158

CFA Program Curriculum: Vol.1 p.338

Question #3 of 60

A) No.

Explanation

The use of the Durbin Watson statistic is inappropriate in an autoregressive regression, which is what Weatherford is using. The Durbin Watson statistic is appropriate for trend models but not autoregressive models. To determine whether the errors terms are serially correlated in an autoregressive model, the significance of the autocorrelations should be tested using the t -statistic.

For Further Reference:

Study Session 3, LOS 11.d

SchweserNotes: Book 1 p.193

CFA Program Curriculum: Vol.1 p.415

Question #4 of 60

C) Nonstationary data Dickey Fuller

Explanation

Weatherford is using an autoregressive first-order regression model in which this period's silver price is regressed on the previous period's price. The regression is of the form:

$$X_t = b_0 + b_1 X_{t-1}$$

The most likely problem in this regression is that the data is not covariance stationary. In the plot of the data, the mean of the data does not appear to be constant (it is much higher in the middle period.) The estimate of the lag one slope coefficient is close to 1.0, which also suggests that the data is nonstationary.

To definitively test this, the Dickey Fuller test should be used, where the null hypothesis is that $b_1 - 1$ is equal to zero. If the null hypothesis is not rejected, we say that the data has a unit root and is nonstationary.

For Further Reference:

Study Session 3, LOS 10.I

SchweserNotes: Book 1 p.165

CFA Program Curriculum: Vol.1 p.349

Study Session 3, LOS 11.f, k, n

SchweserNotes: Book 1 p.195, 199, 208

CFA Program Curriculum: Vol.1 p.420, 433, 452

Question #5 of 60

A) first differences of the data.

Explanation

Weatherford should use the first differences of the data in the regression. That is, instead of using the actual price levels, she should use the change in the data rather than levels:

$$Y_t = X_t - X_{t-1}$$

Then the appropriate regression will be:

$$Y_t = b_0 + b_1 Y_{t-1}$$

The transformed time series data will have a mean reverting level and be covariance stationary.

For Further Reference:

Study Session 3, LOS 11.j

SchweserNotes: Book 1 p.199

CFA Program Curriculum: Vol.1 p.433

Question #6 of 60

B) 1.830 1.81

Explanation

To determine the mean reverting level, we divide the intercept by one minus the slope coefficient:

$$\text{mean-reverting level} = \frac{b_0}{1 - b_1} = \frac{2.00}{1 - (-0.09)} = 1.83$$

The one-step-ahead predicted value is calculated by substituting the current value into the regression equation:

$$\hat{y}_{t+1} = b_0 + b_1 (y_t) = 2.00 + (-0.09)(-0.80) = 2.072$$

The two-step-ahead predicted value is then calculated by substituting the one-step-ahead predicted value into the regression equation:

$$\hat{y}_{t+2} = b_0 + b_1 (\hat{y}_{t+1}) = 2.00 + (-0.09)(2.072) = 1.81$$

For Further Reference:

Study Session 3, LOS 11.d, e

SchweserNotes: Book 1 p.193, 194

CFA Program Curriculum: Vol.1 p.415, 417

Question #7 of 60

C) Available-for-sale.

Explanation

Investments in financial assets are classified as held-to-maturity, held-for-trading, designated at fair value, and available-for-sale. Held-to-maturity applies to debt securities only. Held-for-trading securities are debt or equity securities that are expected to be sold in the near term. Since the investment in Odessa is long-term, the securities are classified as available-for-sale.

For Further Reference:

Study Session 5, LOS 16.a

SchweserNotes: Book 2 p.1

CFA Program Curriculum: Vol.2 p.10

Question #8 of 60

A) €1 million profit.

Explanation

Since Iberia owns 40% of Midland (5 million shares owned / 12.5 million total shares outstanding), the equity method is used. Under the equity method, Iberia reports its pro-rata share of Midland's net income (€5 million loss \times 40% = €2 million loss). Changes in market value are ignored under the equity method.

Iberia's investment in Odessa is classified as available-for-sale since the investment is considered long-term. Dividend income from available-for-sale securities is recognized in the income statement (€3 dividend \times 1 million shares = €3 million). The changes in market value are reported in shareholders' equity.

Investment income from Midland and Odessa is €1 million (€3 million dividend income from Odessa – €2 million pro-rata loss from Midland).

For Further Reference:

Study Session 5, LOS 16.a

SchweserNotes: Book 2 p.1

CFA Program Curriculum: Vol.2 p.10

Question #9 of 60

B) €101.4 million.

Explanation

Under the equity method, the balance sheet carrying value is increased by the pro-rata earnings of the investee and decreased by the dividends received from the investee. The balance sheet value at the end of 2008 is €88 million [$€80 \text{ million} + (€30 \text{ million Midland 2008 net income} \times 40\%) - (€10 \text{ million dividend} \times 40\%)$]. The balance sheet value at the end of 2009 is €84.4 million [$€88 \text{ million} - (€5 \text{ million loss} \times 40\%) - (€4 \text{ million dividend} \times 40\%)$].

Available-for-sale securities are reported on the balance sheet at fair value. Thus, the fair value of Odessa is €17 million ($€17 \times 1 \text{ million shares}$).

As a result of its investment in Midland and Odessa, Iberia will report investment assets of €101.4 million (€84.4 million book value of Midland + €17 million fair value Odessa).

For Further Reference:

Study Session 5, LOS 16.a

SchweserNotes: Book 2 p.1

CFA Program Curriculum: Vol.2 p.10

Question #10 of 60

C) No adjustment is necessary.

Explanation

Profit from intercompany transactions must be deferred until the profit is confirmed through use or sale to a third party. Since all of the goods purchased from Midland have been sold to third parties, all of the profit from the intercompany sale has been confirmed. Thus, no adjustment is needed.

For Further Reference:

Study Session 5, LOS 16.a

SchweserNotes: Book 2 p.1

CFA Program Curriculum: Vol.2 p.10

Question #11 of 60

B) No, because under U.S. GAAP, all entities can account for their investment in associates at fair value.

Explanation

Under U.S. GAAP, all entities can account for their equity method investments at fair value. Under IFRS, the fair value option is only available for venture capital firms/mutual funds and similar entities.

For Further Reference:

Study Session 5, LOS 16.b

Question #12 of 60

A) Yes.

Explanation

In a profitable year, net profit margin (net income/sales) will be higher under the equity method because sales are lower under the equity method. Acquisition includes the sales figures for both the parent and subsidiary, while the equity method only includes the sales figure for the parent company. Net income is the same under both methods. Therefore, the statement is correct.

For Further Reference:

Study Session 5, LOS 16.c
SchweserNotes: Book 2 p.24
CFA Program Curriculum: Vol.2 p.35

Question #13 of 60

B) Unchanged Unchanged

Explanation

Lower expected rate of return on plan assets (i.e., 8% instead of 10%) would not affect the PBO or the total periodic pension cost. PBO is the present value of benefits earned to date and is unaffected by changes in expected return on plan assets (but is sensitive to changes in discount rate). Total periodic pension cost is affected by *actual* return on plan assets and not the *expected* return on plan assets.

For Further Reference:

Study Session 5, LOS 17.d
SchweserNotes: Book 2 p.46
CFA Program Curriculum: Vol.2 p.81

Question #14 of 60

C) \$188 million.

Explanation

Benefits paid can be determined by reconciling ending PBO to beginning PBO:

Beginning PBO	1,022
+ Current service cost	118
+ Past service cost	36
+ Interest cost	82
+ Acturial Loss	128
(-) benefit paid	188
(=) Ending PBO	1,198

For Further Reference:

Study Session 5, LOS 17.b
SchweserNotes: Book 2 p.37
CFA Program Curriculum: Vol.2 p.75

Question #15 of 60

A) \$1,024 million.

Explanation

ending fair value of plan assets

= beginning fair value + contributions + actual return - benefits paid

= 896 + 102 + 214 - 188 = 1,024 million

For Further Reference:

Study Session 5, LOS 17.b

SchweserNotes: Book 2 p.37

CFA Program Curriculum: Vol.2 p.75

Question #16 of 60

C) \$150 million.

Explanation

Total periodic pension cost = employer contributions - change in funded status

= 102 - [ending funded status - beginning funded status]

= 102 - [(1,024 - 1,198) - (896 - 1,022)] = \$150 million

or

total periodic pension cost = current service cost + past service cost + interest cost + actuarial loss - actual return on plan assets = 118 + 36 + 82 + 128 - 214 = \$150 million.

For Further Reference:

Study Session 5, LOS 17.c

SchweserNotes: Book 2 p.41

CFA Program Curriculum: Vol.2 p.78

Question #17 of 60

C) \$164 million.

Explanation

Under IFRS, periodic pension cost reported in P&L would consist of current and past service cost plus/minus net interest expense/income. Net interest income is computed as the discount rate multiplied by beginning funded status.

periodic pension cost in P&L = 118 + 36 - 0.08[896 - 1,022] = 164.08

Note that since the beginning funded status is negative, there is a net interest cost.

For Further Reference:

Study Session 5, LOS 17.c

SchweserNotes: Book 2 p.41

CFA Program Curriculum: Vol.2 p.78

Question #18 of 60

A) Both will increase.

Explanation

PBO will increase with a higher rate of compensation growth. A higher rate of compensation growth will also increase the total periodic pension cost as well as the periodic pension cost in P&L by increasing both the service and interest costs. Under IFRS, the net interest cost is computed as the discount rate multiplied by beginning funded status. The beginning PBO for the next period would be higher due to the higher compensation growth assumption and hence the net interest cost will be higher.

For Further Reference:

Study Session 5, LOS 17.d

SchweserNotes: Book 2 p.46

CFA Program Curriculum: Vol.2 p.81

Question #19 of 60

A) Both comments are correct.

Explanation

Hinesman's comment is correct. Studies have shown, that on average, companies with strong corporate governance systems have higher measures of profitability and generate higher returns for shareholders.

Randall's comment is also correct. The lack of an effective corporate governance system increases risk to an investor. Four main risks of not having an effective corporate governance system include asset risk and liability risk, as well as the two risks described by Randall: financial disclosure risk and strategic policy risk.

For Further Reference:

Study Session 8, LOS 25.a, h

SchweserNotes: Book 2 p.255, 264

CFA Program Curriculum: Vol.3 p.201, 236

Question #20 of 60

A) The internal audit staff of the firm should report directly to the audit committee, all of the audit committee members should be independent, and the committee should meet with auditors at least annually without management present.

Explanation

According to corporate governance best practice, the audit committee should consist only of independent directors; it should have expertise in financial and accounting matters (for purposes of the exam, at least two members of the committee should have relevant accounting and auditing experience); the internal audit staff for the firm should report directly to the audit committee; and the committee should meet with external auditors at least once annually without management present.

For Further Reference:

Study Session 8, LOS 25.e

SchweserNotes: Book 2 p.259

CFA Program Curriculum: Vol.3 p.209

Question #21 of 60

C) \$0.67.

Explanation

Using a target debt-to-equity ratio of 1:1, the \$150 million in capital spending for 20X1 will be financed with \$75 million in internal equity and \$75 million in debt. The total dividend is the remaining internal equity of $\$112.5 - \$75 = \$37.5$ million, or $\$37.5 / 56.25 = \0.67 per share.

For Further Reference:

Study Session 7, LOS 23.j

SchweserNotes: Book 2 p.232

CFA Program Curriculum: Vol.3 p.163

Question #22 of 60

B) 1.11 1.19

Explanation

FCFE = cash flow from operations – FcInv + net borrowings

20X0: FCFE = $115 - 43 + 22 = 94$

20X1: FCFE = $132 - 150 + 75 = 57$

FCFE coverage ratio = FCFE / (dividends + share repurchases)

20X0: $94 / (42.88 + 42) = 1.11$

20X1: $57 / (45 + 3) = 1.19$

For Further Reference:

Study Session 7, LOS 23.i

SchweserNotes: Book 2 p.232

CFA Program Curriculum: Vol.3 p.160

Question #23 of 60

A) 25%..

Explanation

Kazmaier received a score of 25% because it was in compliance with global best practice with respect to only one of the four criteria.

Criterion 1: Global best practice recommends that three-quarters (75%) of the board members be independent. Of the nine total board members, only five are independent. Kazmaier fails this criterion.

Criterion 2: Global best practice recommends that the Chairman of the Board be independent. Since Kazmaier's Chairman is also the CEO, Kazmaier fails this criterion.

Criterion 3: Global best practice recommends that the entire board of directors stand for reelection annually. Since it appears that Kazmaier has staggered board elections, Kazmaier fails this criterion.

Criterion 4: Global best practice requires independent board members to meet in separate sessions at least annually. Although quarterly meetings between independent directors are preferable, the fact that they happen annually means Kazmaier passes this criterion.

For Further Reference:

Study Session 8, LOS 25.e

SchweserNotes: Book 2 p.259

CFA Program Curriculum: Vol.3 p.209

Question #24 of 60**C)** Three.**Explanation**

Nagy's three rationales all correctly describe common advantages of share repurchases.

For Further Reference:

Study Session 7, LOS 23.g

SchweserNotes: Book 2 p.228

CFA Program Curriculum: Vol.3 p.152

Question #25 of 60**B)** \$370,000.**Explanation**

Cost Item	Years			
	0	1	2	3
Cost	(400)			
Sale of old*	30			
Revenue		175.0	175.0	175.0
Less: operating cost		25.0	25.0	25.0
Less: depreciation (400,000 × MACRS%)		132.0	180.0	60.0
<u>EBT</u>		18.0	(30.0)	90.0
– Tax (40%)		7.2	(12.0)	36.0
<u>NI</u>		10.8	(18.0)	54.0
+ Depreciation		132.0	180.0	60.0
+ Sale				10.0
+ <u>Sale tax shield**</u>				7.2
<u>= CF</u>		<u>142.8</u>	<u>162.0</u>	<u>131.2</u>

NPV (@ 20%) = –62,574**IRR = 8.796%**

Therefore, REJECT, because the NPV < 0, FRR < 20%.

Using the calculator: CF0 = –370, C01 = 142.8, C02 = 162, C03 = 131.2,

I = 20, CPT → NPV = –62,574, CPT → IRR = 8.796.

****Sale tax shield**

BV = 28 (= 400 × 0.07)
– sale – 10
 Loss 18
 Tax shield = loss × tax rate = 18 × 0.4 = 7.2

***Sale of old**

BV = 0
 Sale = 50
 Gain = 50
 Tax (40%) = 20

Net impact of sale = \$10 sale proceeds + \$7.2 tax shield = 17.2 Net proceeds = 30

See solution above. Alternatively, initial outlay = $FCInv + WCInv - Sal_0 + T(Sal_T - B_0) = 400 + 0 - 50 + 0.4(50 - 0) = 400 - 50 + 20 = \370 .

For Further Reference:

Study Session 7, LOS 21.a

SchweserNotes: Book 2 p.154

CFA Program Curriculum: Vol.3 p.27

Question #26 of 60

C) \$142,800.

Explanation

Cost Item	Years			
	0	1	2	3
Cost	(400)			
Sale of old*	30			
Revenue		175.0	175.0	175.0
Less: operating cost		25.0	25.0	25.0
Less: depreciation ($400,000 \times$ MACRS%)		132.0	180.0	60.0
<u>EBT</u>		18.0	(30.0)	90.0
- Tax (40%)		7.2	(12.0)	36.0
<u>NI</u>		10.8	(18.0)	54.0
+ Depreciation		132.0	180.0	60.0
+ Sale				10.0
+ <u>Sale tax shield**</u>				7.2
<u>= CF</u>		<u>142.8</u>	<u>162.0</u>	<u>131.2</u>

NPV (@ 20%) = -62,574

IRR = 8.796%

Therefore, REJECT, because the $NPV < 0$, $FRR < 20\%$.

Using the calculator: $CF_0 = -370$, $C_1 = 142.8$, $C_2 = 162$, $C_3 = 131.2$,

$I = 20$, $CPT \rightarrow NPV = -62,574$, $CPT \rightarrow IRR = 8.796$.

**Sale tax shield

BV = 28 ($= 400 \times 0.07$)

- sale - 10

Loss 18

Tax shield = loss \times tax rate = $18 \times 0.4 = 7.2$

Net impact of sale = \$10 sale proceeds + \$7.2 tax shield = 17.2 Net proceeds = 30

See solution above. Alternatively, $CF_1 = (S - C)(1 - T) + DT = (175 - 25)(0.6) + (0.4)(0.33)(400) = 90 + 52.8 = \142.8 .

*Sale of old

BV = 0

Sale = 50

Gain = 50

Tax (40%) = 20

For Further Reference:

Study Session 7, LOS 21.a

SchweserNotes: Book 2 p.154

CFA Program Curriculum: Vol.3 p.27

Question #27 of 60

C) Increase by \$12,000.

Explanation

Cost Item	Years			
	0	1	2	3
Cost	(400)			
Sale of old*	30			
Revenue		175.0	175.0	175.0
Less: operating cost		25.0	25.0	25.0
Less: depreciation (400,000 × MACRS%)		132.0	180.0	60.0
<u>EBT</u>		18.0	(30.0)	90.0
– Tax (40%)		7.2	(12.0)	36.0
<u>NI</u>		10.8	(18.0)	54.0
+ Depreciation		132.0	180.0	60.0
+ Sale				10.0
+ <u>Sale tax shield**</u>				7.2
<u>= CF</u>		<u>142.8</u>	<u>162.0</u>	<u>131.2</u>

NPV (@ 20%) = –62,574

IRR = 8.796%

Therefore, REJECT, because the NPV < 0, FRR < 20%.

Using the calculator: CF0 = –370, C01 = 142.8, C02 = 162, C03 = 131.2,

I = 20, CPT → NPV = –62,574, CPT → IRR = 8.796.

**Sale tax shield

BV = 28 (= 400 × 0.07)

– sale – 10

Loss 18

Tax shield = loss × tax rate = 18 × 0.4 = 7.2

Net impact of sale = \$10 sale proceeds + \$7.2 tax shield = 17.2

See solution above. Alternatively, CF = –(175 – 25)(0.4) + 400(0.45)(0.4) = –60 + 72 = +\$12.

*Sale of old

BV = 0

Sale = 50

Gain = 50

Tax (40%) = 20

Net proceeds = 30

For Further Reference:

Study Session 7, LOS 21.a

SchweserNotes: Book 2 p.154

CFA Program Curriculum: Vol.3 p.27

Question #28 of 60

A) \$131,200.

Explanation

Cost Item	Years			
	0	1	2	3
Cost	(400)			
Sale of old*	30			
Revenue		175.0	175.0	175.0
Less: operating cost		25.0	25.0	25.0
Less: depreciation (400,000 × MACRS%)		132.0	180.0	60.0
<u>EBT</u>		18.0	(30.0)	90.0
– Tax (40%)		7.2	(12.0)	36.0
<u>NI</u>		10.8	(18.0)	54.0
+ Depreciation		132.0	180.0	60.0
+ Sale				10.0
+ Sale tax shield**				7.2
<u>= CF</u>		<u>142.8</u>	<u>162.0</u>	<u>131.2</u>

NPV (@ 20%) = –62,574

IRR = 8.796%

Therefore, REJECT, because the NPV < 0, FRR < 20%.

Using the calculator: CF₀ = –370, C₀₁ = 142.8, C₀₂ = 162, C₀₃ = 131.2,

I = 20, CPT → NPV = –62,574, CPT → IRR = 8.796.

**Sale tax shield

BV = 28 (= 400 × 0.07)
 – sale – 10
 Loss 18

Tax shield = loss × tax rate = 18 × 0.4 = 7.2

Net impact of sale = \$10 sale proceeds + \$7.2 tax shield = 17.2

See solution above. Alternatively, CF₃ = (175 – 25)(0.6) + (400)(0.15)(0.4) = 90 + 24 = \$114.

TNOCF = Sal_T + WCInv – T(Sal_T – B_T) = 10 + 0 – 0.4(10 – 28) = 10 + 7.2 = \$17.2. CF₃ + TNOCF = \$114 + \$17.2 = \$131.2

*Sale of old

BV = 0

Sale = 50

Gain = 50

Tax (40%) = 20

Net proceeds = 30

For Further Reference:

Study Session 7, LOS 21.a

SchweserNotes: Book 2 p.154

CFA Program Curriculum: Vol.3 p.27

Question #29 of 60

B) is to underestimate NPV.

Explanation

NPV will be underestimated because the reduction in inventory should reflect a cash inflow at the beginning of the project. Even if the inventory builds back up to its previous level at the end of the project (resulting in a cash outflow), the cash inflow will be larger than the present value of the cash outflow.

For Further Reference:

Study Session 7, LOS 21.a

SchweserNotes: Book 2 p.154

CFA Program Curriculum: Vol.3 p.27

Question #30 of 60**B) 8.8%** **Reject****Explanation**

If the NPV is less than zero, the IRR must be less than the discount rate of 20% (so 8.8% is the only possible answer), and the project should be rejected. The actual calculations of NPV and IRR are shown in the solution, but these calculations are not necessary to answer the question.

For Further Reference:

Study Session 7, LOS 21.a

SchweserNotes: Book 2 p.154

CFA Program Curriculum: Vol.3 p.27

Question #31 of 60**A) 1.5%.****Explanation**

The equity risk premium is estimated as:

$$\text{ERP} = [1 + i] \times [1 + \text{REg}] \times [1 + \text{PEg}] - 1 + Y - \text{RF}$$

where:

i = the expected inflation rate = 2.6%

REg = expected real growth in GDP = 3.0%

PEg = relative value changed due to changes in P/E ratio = -0.03

Y = yield on the market index = 1.7%

RF = risk-free rate of return = 2.7%

$$\text{ERP} = (1.026) \times (1.030) \times (0.97) - 1 + 0.017 - 0.027 = 0.015 = 1.50\%$$

Note: We do not add the risk-free rate because we are computing the equity risk premium and not the required rate of return. Conversely, we can compute the required rate of return and then subtract the risk-free rate to obtain the equity risk premium.

For Further Reference:

Study Session 9, LOS 28.b

SchweserNotes: Book 3 p.15

CFA Program Curriculum: Vol.4 p.56

Question #32 of 60**C) historical estimates.****Explanation**

Historical estimates are subject to survivorship bias. If the data are not adjusted for the effects of non-survivors, returns (based only on survivors) will be biased upwards.

For Further Reference:

Study Session 9, LOS 28.b

SchweserNotes: Book 3 p.15

CFA Program Curriculum: Vol.4 p.56

Question #33 of 60

C) 7.0%.

Explanation

Using CAPM, the required return is:

required rate of return = risk-free rate + (beta × equity risk premium)

required return for NE = 2.7% + (0.83 × 5.2%) = 7.02%

For Further Reference:

Study Session 9, LOS 28.c

SchweserNotes: Book 3 p.19

CFA Program Curriculum: Vol.4 p.69

Question #34 of 60

A) 4.4%.

Explanation

With the Fama-French model, the required return is:

required rate of return = risk-free rate + β_{MKT} (market risk premium) + β_{size} (size risk premium) + β_{value} (value premium)

required rate of return for NE = 2.7% + 0.83(5.2%) + (-0.76)(3.2%) + (-0.04)(5.4%) = 4.37%

For Further Reference:

Study Session 9, LOS 28.c

SchweserNotes: Book 3 p.19

CFA Program Curriculum: Vol.4 p.69

Question #35 of 60

A) 0.90.

Explanation

adjusted beta = (2/3)(0.83) + (1/3)(1.0) = 0.89.

For Further Reference:

Study Session 9, LOS 28.c

SchweserNotes: Book 3 p.19

CFA Program Curriculum: Vol.4 p.69

Question #36 of 60

C) Estimate the unlevered beta for the public company based on its debt/equity ratio. Then, use that unlevered beta to estimate the equity beta for VixPRO based on the VixPRO debt/equity ratio.

Explanation

The recommended method for estimating the beta of a nonpublic company from the beta of a public company is as follows: (1) Unlever the beta for the public company, using the public

company's debt/equity ratio. (2) Relever (adjust upward) this beta using VixPRO's debt/equity ratio to get the estimated equity beta for VixPRO.

For Further Reference:

Study Session 9, LOS 28.d

SchweserNotes: Book 3 p.24

CFA Program Curriculum: Vol.4 p.70

Question #37 of 60

A) Short 9,259 1-month call options.

Explanation

Nolte is long in the underlying stock, so she should short call options, and she can use any of the options to delta hedge. The hedge ratio (the number of calls per share) is $(1 / \text{delta})$, so any of these four short call positions will hedge her long position in the stock:

$$\frac{1}{0.54} \times 5,000 = 9,259 \text{ 1-month call options}$$

$$\frac{1}{0.58} \times 5,000 = 8,621 \text{ 3-month call options}$$

$$\frac{1}{0.61} \times 5,000 = 8,197 \text{ 6-month call options}$$

$$\frac{1}{0.63} \times 5,000 = 7,937 \text{ 9-month call options}$$

For Further Reference:

Study Session 14, LOS 41.m

SchweserNotes: Book 4 p.186

CFA Program Curriculum: Vol.5 p.370

Question #38 of 60

A) will have to continuously rebalance the position in order to maintain the delta hedge.

Explanation

The hedge must be continually rebalanced, even in the unlikely event that the stock price doesn't change, because the option's delta changes as time passes and the option approaches maturity. If she simultaneously buys an equivalent amount of put options, the overall position (including the calls, the puts, and 5,000 shares of Pioneer) will no longer be delta hedged.

For Further Reference:

Study Session 14, LOS 41.m

SchweserNotes: Book 4 p.186

CFA Program Curriculum: Vol.5 p.370

Question #39 of 60

C) The price of the underlying changes smoothly.

Explanation

Gamma risk arises when the price of the underlying jumps abruptly (as opposed to smoothly).

For Further Reference:

Study Session 14, LOS 41.n

SchweserNotes: Book 4 p.188

CFA Program Curriculum: Vol.5 p.373

Question #40 of 60**B)** negative and would increase with the stock's price.**Explanation**

Delta hedged portfolio consists of long position in stocks and short position in call options. Because the gamma of long stock position is zero and the gamma of short call is negative, the net gamma of a delta hedged portfolio is negative.

As the stock price increases, call delta increases and we need fewer calls. As we reduce the number of short calls, the net gamma increases (becomes less negative).

For Further Reference:

Study Session 14, LOS 41.n

SchweserNotes: Book 4 p.188

CFA Program Curriculum: Vol.5 p.373

Question #41 of 60**B)** Nolte is only correct on the 3-month option.**Explanation**

Both the 3-month and the 9-month put options are correctly priced according to put-call parity. Note that you are given the continuously compounded risk-free rate, so you have to use the continuous version of put-call parity.

$$P_0 = C_0 - S_0 + \frac{X}{e^{R_f \times T}}$$

$$P(3\text{-month}) = \$5 + \frac{\$40}{e^{0.05 \times 0.25}} - \$40 = \$4.50$$

$$P(9\text{-month}) = \$8.81 + \frac{\$40}{e^{0.05 \times 0.75}} - \$40 = \$7.34$$

Therefore, she's correct that the 3-month put is not mispriced, but incorrect in her conclusion that the 9-month put is mispriced.

For Further Reference:

Study Session 14, LOS 41.a

SchweserNotes: Book 4 p.162

CFA Program Curriculum: Vol.5 p.328

Question #42 of 60**C)** buying Delpha stock and writing Delpha calls.**Explanation**

$S_0 = \$60$, $S^+ = 60(1.15) = \$69$, $S^- = 60(0.85) = \$51$, $X = \$60$. $C^+ = 69 - 60 = \$9$, $C^- = 0$

$$h = \frac{C^+ - C^-}{S^+ - S^-} = \frac{9 - 0}{69 - 51} = 0.5$$

$$C_0 = hS_0 + \frac{(-hS^+ + C^+)}{(1 + R_f)} = 0.5(60) + \frac{(-0.5)(69) + 9}{(1.05)} = \$5.71$$

Because the current call price of \$6.90 is higher than the no-arbitrage price, an arbitrage profit can be earned by writing calls and buying 0.5 shares per call written.

For Further Reference:

Study Session 14, LOS 41.c

SchweserNotes: Book 4 p.170

CFA Program Curriculum: Vol.5 p.330

Question #43 of 60

A) 3.73%.

Explanation

The semi-annual fixed payment is calculated as $\frac{1 - 0.9285}{0.9840 + 0.9676 + 0.9488 + 0.9285} = 0.01867$, which, when annualized, is 3.73%.

For Further Reference:

Study Session 14, LOS 40.c

SchweserNotes: Book 4 p.138

CFA Program Curriculum: Vol.5 p.305

Question #44 of 60

A) \$82,500.

Explanation

Floating rate applicable for the first settlement was determined at the inception of the swap (i.e., 3.25%). The net amount owed by the fixed payer of the swap would be $(0.038 - 0.0325)/2 \times \$30,000,000 = \$82,500$.

For Further Reference:

Study Session 14, LOS 40.c

SchweserNotes: Book 4 p.138

CFA Program Curriculum: Vol.5 p.305

Question #45 of 60

C) \$0.99768 fixed and \$1.01066 floating.

Explanation

The value of the fixed rate bond for \$1 of notional principal is calculated as:

$$(\$0.038 / 2) \times (0.9945 + 0.9760 + 0.9510 + 0.9246) + [\$1 \times (0.9246)] = \$0.99768$$

The value of the floating rate note for \$1 of notional principal is calculated by looking at the floating rate when the swap was created. $R_{180\text{-day}} = 3.25\%$ and the 60-day discount factor as of today is 0.9945; therefore, the calculation is: $\{ \$1 + [\$0.0325 \times (180 / 360)] \} \times 0.9945 = \1.01066 .

For Further Reference:

Study Session 14, LOS 40.d

SchweserNotes: Book 4 p.138

CFA Program Curriculum: Vol.5 p.305

Question #46 of 60

A) \$600,000 paid by the floating-rate payer.

Explanation

The value of the swap to the floating rate payer would be $(0.99000 - 1.01000) \times \$30,000,000 = -\$600,000$. In this case, the floating rate payer would need to pay \$600,000 to terminate the swap, based on the value of the swap to the fixed rate payer.

For Further Reference:

Study Session 14, LOS 40.d

SchweserNotes: Book 4 p.138

CFA Program Curriculum: Vol.5 p.305

Question #47 of 60

C) Short Long

Explanation

A long position in a payer swaption decreases in value as rates decrease, and a short position increases. A long position in a receiver swaption increases in value as rates decrease, and a short position decreases.

Therefore, to exploit the anticipated drop in rates, Black should go short in the payer swaption or long in the receiver swaption.

For Further Reference:

Study Session 14, LOS 41.k

SchweserNotes: Book 4 p.178

CFA Program Curriculum: Vol.5 p.364

Question #48 of 60

B) \$38,500

Explanation

Value of fixed-rate bond = $0.015(0.9840) + 0.015(0.9676) + 1.015(0.9488) = 0.9923$

Value of equity swap immediately after settlement = par value = \$1

Value of pay fixed, receive equity swap = $\$1 - \$0.9923 = \$0.0077$ (per \$1 notional)

Value for \$5 million notional = \$38,500

For Further Reference:

Study Session 14, LOS 40.d

SchweserNotes: Book 4 p.138

CFA Program Curriculum: Vol.5 p.305

Question #49 of 60

B) \$12 million.

Explanation

Invested capital in the fund was \$20 million + \$100 million = \$120 million. Committed capital was \$120 million + \$100 million = \$220 million. Since the fund was sold for \$180 million, the fund earned a profit of \$180 million – \$120 million = \$60 million.

Under the total return using invested capital method, carried interest is paid to the GP only after the portfolio value exceeds invested capital (by 30% as specified by IGS). Since the \$180 million exceeds (\$120 million)(1.3) = \$156 million, the GP is entitled to carried interest. Carried interest is calculated as:

\$180 million – \$120 million = \$60 million. 20% of \$60 million is \$12 million.

For Further Reference:

Study Session 15, LOS 43.h, i

SchweserNotes: Book 5 p.17, 18

CFA Program Curriculum: Vol.6 p.44, 46

Question #50 of 60

B) Venture capital method DCF method

Explanation

The DCF method and relative value approach would be less appropriate for Sverig. Given that Sverig is a startup venture capital firm, it would be difficult to assess its future cash flows and there are likely few comparables to benchmark against. Given that L'Offre has been in existence for over a century, it likely has relatively stable and predictable cash flows. Several comparables would also likely exist in the same industry. This would make either the DCF method or relative value approach an appropriate valuation technique.

For Further Reference:

Study Session 15, LOS 45.i

SchweserNotes: Book 5 p.83

CFA Program Curriculum: Vol.6 p.161

Question #51 of 60

C) both market and agency risk.

Explanation

Market risk is the uncertainty in long-term macroeconomic factors, such as changes in interest rates and foreign exchange rates. If these changes adversely affect the private equity fund firms, both the fund's investors (limited partners) and the firms' managers could see their equity stake and investment declining. Agency risk refers to the possibility that the managers of the portfolio (investee) companies may place their personal interests ahead of the interests of the firm and of private equity investors.

For Further Reference:

Study Session 15, LOS 45.g

SchweserNotes: Book 4 p.78

CFA Program Curriculum: Vol.5 p.156

Question #52 of 60

C) Carried interest Tag-along, drag-along clause

Explanation

The GP's share in profits is referred to as carried interest and is generally set at 20% of net profits after fees. A tag-along, drag-along clause would give management the right to sell an equity stake upon sale by the private equity owners.

Ratchet specifies the equity allocation between the limited partners (LPs) and management. Distribution waterfall specifies how profits will flow to the LPs and also the conditions under which the GP may receive carried interest.

For Further Reference:

Study Session 15, LOS 45.b

SchweserNotes: Book 5 p.63

CFA Program Curriculum: Vol.6 p.142

Question #53 of 60

C) \$51.20 million.

Explanation

First, the \$400 million terminal value must be discounted two years at 30% to the second round of financing:

$$POST_2 = \frac{\$400 \text{ million}}{(1.3)^2} = \$236.686 \text{ million}$$

The second-round pre-money valuation (PRE_2) is calculated by netting the \$40 million second-round investment from the $POST_2$ calculation:

$$PRE_2 = POST_2 - INV_2 = \$236.686 \text{ million} - \$40 \text{ million} = \$196.686 \text{ million.}$$

Finally, the PRE_2 valuation must be discounted back 4 years at 40% to arrive at the $POST_1$ valuation:

$$POST_1 = \frac{\$196.686 \text{ million}}{(1.4)^4} = \$51.199 \text{ million}$$

For Further Reference:

Study Session 15, LOS 45.j

SchweserNotes: Book 5 p.85

CFA Program Curriculum: Vol.6 p.166

Question #54 of 60

A) \$6.24.

Explanation

Calculating the number shares for Sverig's first-round investors requires a three-step approach where:

- f_1 is the fractional ownership for first-round investors.
- INV_1 is the initial investment in Sverig by the private equity partners.
- S_e is the number of shares owned by Sverig's founders.
- S_{pe} is the number of shares owned by the private equity LPs.

Step 1: Determine the fractional ownership for first-round investors (f_1):

$$f_1 = \frac{INV}{POST_1} = \frac{\$20 \text{ million}}{\$51.199 \text{ million}} = 39.06\%$$

First-round investors thus own approximately 39.06% of the firm.

Step 2: Determine the number of shares first-round investors need to receive their fractional ownership:

$$S_{pe1} = S_e \left(\frac{f_1}{1 - f_1} \right) = 5,000,000 \left(\frac{0.3906}{1 - 0.3906} \right) = 3,204,792$$

To obtain a 39.06% stake in Sverig, first-round investors would have to receive 3,204,792 shares.

Step 3: Determine the stock price after the first round of financing (P_1):

$$P_1 = \frac{INV_1}{S_{pe1}} = \frac{\$20 \text{ million}}{3,204,792} = \$6.24$$

For Further Reference:

Study Session 15, LOS 45.j

SchweserNotes: Book 5 p.85

CFA Program Curriculum: Vol.6 p.166

Question #55 of 60

C) 9.7%.

Explanation

$$E(R_P) = 0.6E(R_{WMB}) + 0.4E(R_{REL}) = 0.6(9\%) + 0.4(10.8\%) = 9.72\%$$

For Further Reference:

Study Session 16, LOS 48.d

SchweserNotes: Book 5 p.146

CFA Program Curriculum: Vol.6 p.275

Question #56 of 60

B) -1.7.

Explanation

$$\beta_{P,INF} = 0.6\beta_{WMB,INF} + 0.4\beta_{REL,INF} = 0.6(-2.2) + 0.4(-1.0) = -1.72$$

For Further Reference:

Study Session 16, LOS 48.d

SchweserNotes: Book 5 p.146

CFA Program Curriculum: Vol.6 p.275

Question #57 of 60

A) 7.35%.

Explanation

$$8 = E(R) + (-0.9 \times 0.5) + (1.2 \times 0.5) + (0.5)$$

$$E(R) = 7.35\%$$

For Further Reference:

Study Session 16, LOS 48.d

SchweserNotes: Book 5 p.146

CFA Program Curriculum: Vol.6 p.275

Question #58 of 60

B) portfolio Y.

Explanation

Consider portfolio A comprising 50% portfolio X and 50% portfolio Z. Portfolio A will have an expected return of 12.5% and a factor sensitivity of 1.25. A long position in portfolio A and short position in portfolio Y will have an expected return of 0.5% with zero factor sensitivity.

For Further Reference:

Study Session 16, LOS 48.b

SchweserNotes: Book 5 p.143

CFA Program Curriculum: Vol.6 p.270

Question #59 of 60

B) active risk squared.

Explanation

Active risk squared = active factor risk + active specific risk

For Further Reference:

Study Session 16, LOS 48.e

SchweserNotes: Book 5 p.151

CFA Program Curriculum: Vol.6 p.286

Question #60 of 60

C) lower-rated corporate bonds will outperform higher-rated corporate bonds.

Explanation

Credit spreads tighten during times of economic expansions. During such times, lower-rated bonds outperform higher-rated bonds.

For Further Reference:

Study Session 17, LOS 50.f

SchweserNotes: Book 5 p.188

CFA Program Curriculum: Vol.6 p.401