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Question 1

Question Type: MultipleChoice

Shirley Nolte, CFA, is a portfolio manager for McHugh Investments. Her portfolio includes 5,000 shares of Pioneer common stock (ticker symbol PNER), which is currently trading at $40 per share. Pioneer is an energy and petrochemical business that operates or markets its products in the United States, Canada, Mexico, and over 100 other countries around the world. Pioneer's core business is the exploration, production, and transportation of crude oil and natural gas. Pioneer also manufactures and markets petroleum products, basic petrochemicals, and a variety of specialty products.

Nolte would like to fully hedge her exposure to price fluctuations in Pioneer common stock over the next 90 days. She determines that the continuously compounded risk-free rate is 5%. She also gathers some information on exchange-traded options available on Pioneer stock. This data is shown in Exhibit 1.

Exhibit 1: Exchange-Traded Options on Pioneer Stock

Maturity	*Exercise Price*	*Call Option Price*	*Call Option Delta*	*Put Option Price*
1-month	$40	$2.84	0.54	$2.67
3-month	$40	$5.00	0.58	$4.50
6-month	$40	$7.14	0.61	$6.15
9-month	$40	$8.81	0.63	$7.34

From this data, she determines that the put option deltas are equal to:

* 1 -month put option delta = -0.46.

* 3-month put option delta = -0.36.

* 6-month put option delta - - 0.29.

* 9-month put option delta = -0.17.

She also concludes that the 9-month put option is mispriced relative to the 9-month call option, and an arbitrage opportunity is possible, but that the 3-month put option is correctly priced relative to its comparable call option. She also estimates the gamma of the 3-month call option to be 0.023.

In an unrelated transaction, Nolte is also considering the purchase of a put option on a futures contract with an exercise price of $22. Both the option and the futures contract expire in six months. The call price is $1 and the futures price today is $20.

The gamma of the 3-month $40 call option on Pioneer stock is most likely:

Options:

A- greater than the gamma of a 3-month $50 call on Pioneer.

B- less than the gamma of a 3-month $50 call on Pioneer.

C- less than the gamma of a 3-month $30 call on Pioneer.

Answer:

A

Explanation:

The S40 call opiion is at-thc-moncy, and gamma is largest for at-the-money options. Therefore the gamma on the $40 call is greater than a $20 call, a $30 call, and a $50 call. (Study Session 17, LOS 60.f)

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If Nolte hedges the position with the 3-month call options, she:

Options:

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

B- can offset the cost of the hedge and maintain the hedged position by buying an equivalent amount of 3-month put options.

C- will perfectly hedge the position over the 90-day investment horizon and won't need to rebalance the position only if the stock price of Pioneer remains at $40 for 90 days.

Answer:

A

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. (Study Session 17, LOS 60.e)

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Which of the following positions will best delta hedge Nolte's long position in Pioneer?

Options:

A- Short 9,259 1-month calL options.

B- Short 8,197 3-month call options.

C- Short 7,937 6-month call options.

Answer:

A

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 / delta), so any of these four short call positions will hedge her long position in the stock:

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

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

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

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

(Study Session 17, LOS 60.e)

Question 4

Question Type: MultipleChoice

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currently trading on the NYSE for a price of S50 per share and has been steadily decreasing for the past twelve months.

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Nelson is preparing a recommendation to senior management and the board of directors regarding the firm's dividend policy going forward. Nelson is considering recommending that MavsHD engage in a stock repurchase plan, and repurchase 1.5 million shares of the 12.75 million shares outstanding. This repurchase would eliminate any need to increase the cash dividend payout. Other managers at the firm, besides Nelson, believe MavsHD should increase its dividend and gravitate toward what they perceive to be the target payout ratio over the next eight years. Thus, at the end of the current year, the firm will increase the dividend payment by $250,000 over the dividend in the prior year.

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Evaluate Neely's comments about his proposed residual dividend plan. Neely's comments are:

Options:

A- correct.

B- incorrect, because the equity cost of capital would not decrease under the proposed plan.

C- incorrect, because the firm would not have greater access to internal funds for investment.

Answer:

B

Explanation:

Under a residual dividend policy, a firm determines the optimal capital budget and then uses retained earnings to fund the optimal capital budget, paying out what is left over to shareholders. Because the amount of distributable earnings is not known in advance and is

determined as a function of the capital budget, the dollar dividend paid to shareholders will fluctuate widely from year to year. However, the firm will be able to u internally generated funds to a greater extent when deciding how to fund the optimal capital budget. It is not true, however, that the residual dividend policy will reduce the firms cost of capital. Investors do not like unpredictable dividends and will penalize the company in the form of a higher required return on equity to compensate for the additional uncertainty related to dividend payments. (Study Session 8, LOS 29-j,m)

Question 5

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If MavsHD plans on making $160 million in net investments in the current year, what will be the company's dividend payout ratio using the residual dividend model?

Options:

A- 37.3%.

B- 58.2%.

C- 62.8%.

Answer:

A

Explanation:

If the company plans on spending $160 million on net investments, then only 60% of the funds need to come from retained earnings. Therefore, MavsHD needs 0.6 x 160 = $96 million in retained earnings. Net income is projected to be $153 million, leaving $57 million (153 - 96) available to pay dividends. Thus, the dividend payout ratio would equal 57/ 153 = 37-3%. (Study Session 8, LOS 29.g,j)

Question 6

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In light of the fact that there are several different groups of investors who hold shares in MavsHD, evaluate the directors' comments regarding Nelson's proposed stock repurchase plan.

Options:

A- Only Director 1 is correct.

B- Only Director 2 is correct.

C- Both Director 1 and Director 2 are correct.

Answer:

C

Explanation:

Investors do not like instability in the dividends paid by a company. Any volatility in dividends is seen as a negative sign by investors and the company's stock price would be punished as a result of varying dividends. According to the bird-in-the-hand theory, investors prefer the assurance of receiving a higher dividend today rather than waiting for returns in the form of capital appreciation. Because of the uncertainty associated with capital appreciation and the relative certainty of dividends, the bird-in-the-hand theory predicts that investors will reward dividend paying companies with a lower cost of equity and thus a higher equity value. A repurchase does not provide the same type of assurance since it is an unpredictable and possibly one-time event. (Study Session 8, LOS 29.b,l,m)

Question 7

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If MavsHD plans on using debt financing to repurchase 1.5 million shares of their 12.75 million shares outstanding at the market price, which of the following would be closest to the company's debt to equity ratio after the repurchase is completed?

Options:

A- 0.67.

B- 0.76.

C- 0.89.

Answer:

C

Explanation:

market value of equity = 12,750,000 x 50 = 637,500,000

market value of total capital = 637,500,000 / 0.60 = 1,062,500,000

market value of debt = 1,062,500,000 x 0.40 = 425,000,000

equity value after repurchase = (12,750,000 - 1,500,000) x 50 = 562,500,000

debt value after repurchase = 425,000,000 + (1,500,000 x 50) = 500,000,000

debt to equity ratio after repurchase = 500,000,000 / 562,500,000 = 0.8889 0.89

(Study Session 8, LOS 29.1)

Question 8

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If the board proceeds with Nelson's proposed stock repurchase plan as suggested, which of the following is least likely true? MavsHD:

Options:

A- views investing in its own shares as a better alternative to undertaking new investment projects.

B- is trying to signal the market that despite the declining share price, future prospects for the company are good.

C- will reduce the wealth of all shareholders including those who tender their shares for repurchase if the repurchase price is at a premium to the current stock price.

Answer:

C

Explanation:

Paying a premium price for the shares (i.e., a price higher than the current market price of the stock) will reduce the value of the remaining shareholders' shares. However, this value reduction is actually transferred to the selling shareholders since they receive more than the market value per share for selling their shares. (Study Session 8, LOS 29.1)

Question 9

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Using the target payout ratio approach to estimate dividend increases, determine which of the following is closest to the target payout ratio estimated by MavsHD's managers.

Options:

A- 15%.

B- 20%.

C- 25%.

Answer:

C

Explanation:

The target payout ratio approach to estimating a company's expected dividend uses the following formula:

increase in dividends = increase in earnings x target payout ratio x adjustment factor

Rearranging the formula to solve foi the target payout ratio, we obtain:

$$\text{target payout ratio} = \frac{\textit{increase in dividends}}{(\text{increase in earnings x adjustment factor})}$$

Managers at MavsHD wanr to move toward the target payout ratio over a period of 8 years which makes the adjustment factor equal to: 1 / 8 = 0.125. The expected dividend increase is given as $250,000 and the increase in earnings can be computed as the difference between expected earnings and earnings from the prior year: 153,000,000 -145,000,000 = $8,000,000. Plugging each of these figures into the previous formula, the target payout ratio is calculated as:

$$\text{target payout ratio} = \frac{250{,}000}{(8{,}000{,}000 \times 0.125)} = 0.25 = 25\%$$

(Study Session 8, LOS 29.j,k)