SEMINAR 5 & 6: **DERIVATIVES**

FINANCIAL ECONOMICS

May 24, 2020

Part A - Futures and Forwards

Exercise 1

A person with a long position in a commodity futures contract wants the price of the commodity to _____.

(A) decrease substantially

(B) increase substantially

(C) remain unchanged

(D) increase or decrease substantially

Part A - Futures and Forwards

Exercise 1

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Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Part A - Futures and Forwards

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(C) remain unchanged

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Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Answer: (B)

Part A - Futures and Forwards

Exercise 2

Futures contracts have many advantages over forward contracts except that _____.

(A) futures positions are easier to trade

(B) futures contracts are tailored to the specific needs of the investor

(C) futures trading preserves the anonymity of the participants

(D) counterparty credit risk is not a concern on futures

Part A - Futures and Forwards

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Note: A forward contract is an arrangement made over-the-counter (OTC) between two counterparties that negotitate and arrive on the exact terms of the contract - such as its expiration date, how many units of the underlying asset are represented in the contract, and what exactly the underlying asset to be delivered is, among other factors. Forwards settle just once at the end of the contract. Futures, on the other hand, are standardized contracts with fixed maturity dates and uniform underlyings. These are traded on exchanges and settled on a daily basis.

Part A - Futures and Forwards

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Answer: (B)

Part A - Futures and Forwards

Exercise 3

An investor who goes long in a futures contract will _____ any increase in value of the underlying asset and will _____ any decrease in value in the underlying asset.

(A) pay; pay

(B) pay; receive

(C) receive; pay

(D) receive; receive

Part A - Futures and Forwards

Exercise 3

An investor who goes long in a futures contract will _____ any increase in value of the underlying asset and will _____ any decrease in value in the underlying asset.

(A) pay; pay

(B) pay; receive

(C) receive; pay

(D) receive; receive

Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Part A - Futures and Forwards

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(A) pay; pay

(B) pay; receive

(C) receive; pay

(D) receive; receive

Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Answer: (C)

Part A - Futures and Forwards

Exercise 4

In the futures market the short position's loss is _____ the long position's gain.

(A) greater than

(B) less than

(C) equal to

(D) sometimes less than and sometimes greater than

Part A - Futures and Forwards

Exercise 4

In the futures market the short position's loss is _____ the long position's gain.

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(B) less than

(C) equal to

(D) sometimes less than and sometimes greater than

Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Part A - Futures and Forwards

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In the futures market the short position's loss is _____ the long position's gain.

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(B) less than

(C) equal to

(D) sometimes less than and sometimes greater than

Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Answer: (C)

Part A - Futures and Forwards

Exercise 5

Margin must be posted by _____.

(A) buyers of futures contracts only

(B) sellers of futures contracts only

(C) both buyers and sellers of futures contracts

(D) speculators only

Part A - Futures and Forwards

Exercise 5

Margin must be posted by _____.

(A) buyers of futures contracts only

(B) sellers of futures contracts only

(C) both buyers and sellers of futures contracts

(D) speculators only

Note: Initial margin is the percentage of the purchase price of a security that must be covered by cash or collateral when using a margin account.

Part A - Futures and Forwards

Exercise 5

Margin must be posted by _____.

(A) buyers of futures contracts only

(B) sellers of futures contracts only

(C) both buyers and sellers of futures contracts

(D) speculators only

Note: Initial margin is the percentage of the purchase price of a security that must be covered by cash or collateral when using a margin account.

Answer: (C)

Part A - Futures and Forwards

Exercise 6

The daily settlement of obligations on futures positions is called _____.

(A) a margin call

(B) marking to market

(C) a variation margin check

(D) the initial margin requirement

Part A - Futures and Forwards

Exercise 6

The daily settlement of obligations on futures positions is called _____.

(A) a margin call

(B) marking to market

(C) a variation margin check

(D) the initial margin requirement

Answer: (B)

Part A - Futures and Forwards

Exercise 7

An established value below which a trader's margin may not fall is called the _____.

(A) daily limit

(B) daily margin

(C) maintenance margin

(D) convergence limit

Part A - Futures and Forwards

Exercise 7

An established value below which a trader's margin may not fall is called the _____.

(A) daily limit

(B) daily margin

(C) maintenance margin

(D) convergence limit

Answer: (C)

Maintenance margin is the minimum amount of equity that an investor must maintain in the margin account after the purchase has been made

Part A - Futures and Forwards

Exercise 8

An investor would want to _____ to exploit an expected fall in interest rates.

(A) sell S&P 500 Index futures

(B) sell Treasury-bond futures

(C) buy Treasury-bond futures

(D) buy wheat futures

Part A - Futures and Forwards

Exercise 8

An investor would want to _____ to exploit an expected fall in interest rates.

(A) sell S&P 500 Index futures

(B) sell Treasury-bond futures

(C) buy Treasury-bond futures

(D) buy wheat futures

Answer: (C)

Part A - Futures and Forwards

Exercise 9

Forward contracts _____ traded on an organized exchange, and futures contracts _____ traded on an organized exchange.

(A) are; are

(B) are; are not

(C) are not; are

(D) are not; are not

Part A - Futures and Forwards

Exercise 9

Forward contracts _____ traded on an organized exchange, and futures contracts _____ traded on an organized exchange.

(A) are; are

(B) are; are not

(C) are not; are

(D) are not; are not

Answer: (C)

A forward contract is an arrangement made over-the-counter (OTC) between two counterparties that negotitate and arrive on the exact terms of the contract - such as its expiration date, how many units of the underlying asset are represented in the contract, and what exactly the underlying asset to be delivered is, among other factors. Forwards settle just once at the end of the contract. Futures, on the other hand, are standardized contracts with fixed maturity dates and uniform underlyings. These are traded on exchanges and settled on a daily basis.

Part A - Futures and Forwards

Exercise 10

If the S&P 500 Index futures contract is overpriced relative to the spot S&P 500 Index, you should _____.

(A) buy all the stocks in the S&P 500 and write put options on the S&P 500 Index

(B) sell all the stocks in the S&P 500 and buy call options on S&P 500 Index

(C) sell S&P 500 Index futures and buy all the stocks in the S&P 500

(D) sell short all the stocks in the S&P 500 and buy S&P 500 Index futures

Part A - Futures and Forwards

Exercise 10

If the S&P 500 Index futures contract is overpriced relative to the spot S&P 500 Index, you should _____.

(A) buy all the stocks in the S&P 500 and write put options on the S&P 500 Index

(B) sell all the stocks in the S&P 500 and buy call options on S&P 500 Index

(C) sell S&P 500 Index futures and buy all the stocks in the S&P 500

(D) sell short all the stocks in the S&P 500 and buy S&P 500 Index futures

Answer: (C)

Part A - Futures and Forwards

Exercise 11

A farmer sells futures contracts at a price of $2.75 per bushel. The spot price of corn is $2.55 at contract expiration. The farmer harvested 12,500 bushels of corn and sold futures contracts on 10,000 bushels of corn.
What are the farmer's proceeds from the sale of corn?

(A) $27,500

(B) $31,875

(C) $33,875

(D) $35,950

Part A - Futures and Forwards

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What are the farmer's proceeds from the sale of corn?

(A) \$27,500

(B) \$31,875

(C) \$33,875

(D) \$35,950

Answer: (C)

$10,000 * \$2.75 + 2500 * \$2.55 = \$27,500 + \$6,375 = \$33,875$

Part A - Futures and Forwards

Exercise 12

A farmer sells futures contracts at a price of $2.75 per bushel. The spot price of corn is $2.55 at contract expiration. The farmer harvested 12,500 bushels of corn and sold futures contracts on 10,000 bushels of corn.
Ignoring the transaction costs, how much did the farmer improve his cash flow by hedging sales with the futures contracts?

(A) $0

(B) $2,000

(C) $31,875

(D) $33,875

Part A - Futures and Forwards

Exercise 12

A farmer sells futures contracts at a price of \$2.75 per bushel. The spot price of corn is \$2.55 at contract expiration. The farmer harvested 12,500 bushels of corn and sold futures contracts on 10,000 bushels of corn.
Ignoring the transaction costs, how much did the farmer improve his cash flow by hedging sales with the futures contracts?

(A) \$0

(B) \$2,000

(C) \$31,875

(D) \$33,875

Answer: (B)

$(\$2.75 - \$2.55) * 10,000 = \$2,000$

Part A - Futures and Forwards

Exercise 13

A market timer now believes that the economy will soften over the rest of the year as the housing market slump continues, and she also believes that foreign investors will stop buying U.S. fixed-income securities in the large quantities that they have in the past. One way the timer could take advantage of this forecast is to _____.

(A) buy T-bond futures and sell stock-index futures

(B) sell T-bond futures and buy stock-index futures

(C) buy stock-index futures and buy T-bond futures

(D) sell stock-index futures and sell T-bond futures

Part A - Futures and Forwards

Exercise 13

A market timer now believes that the economy will soften over the rest of the year as the housing market slump continues, and she also believes that foreign investors will stop buying U.S. fixed-income securities in the large quantities that they have in the past. One way the timer could take advantage of this forecast is to _____.

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(B) sell T-bond futures and buy stock-index futures

(C) buy stock-index futures and buy T-bond futures

(D) sell stock-index futures and sell T-bond futures

Answer: (D)

Part A - Futures and Forwards

Exercise 14

The price of a futures contract at maturity is different than the price for which an investor can buy the underlying commodity for immediate delivery. This represents an opportunity for _____.

(A) arbitrage

(B) hedging

(C) speculation

(D) loss leading

Part A - Futures and Forwards

Exercise 14

The price of a futures contract at maturity is different than the price for which an investor can buy the underlying commodity for immediate delivery. This represents an opportunity for _____.

(A) arbitrage

(B) hedging

(C) speculation

(D) loss leading

Answer: (A)

Part A - Futures and Forwards

Exercise 15

A stock index spot price is $1,287. The zero-coupon interest rate is 3.8%. What is the potential arbitrage profit if the 6-month futures contract on the index is priced at $1,350?

(A) $19.50

(B) $31.50

(C) $63.00

(D) $39.00

Part A - Futures and Forwards

Exercise 15

A stock index spot price is \$1,287. The zero-coupon interest rate is 3.8%. What is the potential arbitrage profit if the 6-month futures contract on the index is priced at \$1,350?

(A) \$19.50

(B) \$31.50

(C) \$63.00

(D) \$39.00

Answer: (D)

1. Borrow \$1287 at 3.8% for 6 months
2. Buy the index at \$1287
3. Short the futures at \$1350
4. $F_0 = S_0(1+r)^{0.5} = 1287 * (1.038)^{0.5} = 1311$
5. Profit = 1350 - 1311 = \$39.00

Part A - Futures and Forwards

Exercise 16

A stock index spot price is $1,350. The zero-coupon interest rate is 2.6%. What is the potential arbitrage profit if the 6-month futures contract on the index is priced at $1,342?

(A) $8

(B) $25

(C) $32

(D) $39

Part A - Futures and Forwards

Exercise 16

A stock index spot price is \$1,350. The zero-coupon interest rate is 2.6%. What is the potential arbitrage profit if the 6-month futures contract on the index is priced at \$1,342?

(A) \$8

(B) \$25

(C) \$32

(D) \$39

Answer: (B)

1. Short the index at 1350
2. Invest \$1350 for 6 months at 2.6%
3. Go long in a futures contract at 1342
4. $F_0 = S_0(1+r)^{0.5} = 1350 * (1.026)^{0.5} = 1367$
5. Profit = 1367 - 1342 = \$25.00

Part B - Options

Exercise 17

You purchase one MBI July call contract (equaling 100 shares) with a strike of $120 per share for a premium of $5 per share. You hold the option until the expiration date, when MBI stock sells for $123 per share. You will realize a _____ on the investment.

(A) $200 profit

(B) $200 loss

(C) $300 profit

(D) $300 loss

Part B - Options

Exercise 17

You purchase one MBI July call contract (equaling 100 shares) with a strike of $120 per share for a premium of $5 per share. You hold the option until the expiration date, when MBI stock sells for $123 per share. You will realize a _____ on the investment.

(A) $200 profit

(B) $200 loss

(C) $300 profit

(D) $300 loss

Note: A call option is the right to **buy** an asset at a pre-specified price in the future.

Part B - Options

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(B) \$200 loss

(C) \$300 profit

(D) \$300 loss

Note: A call option is the right to **buy** an asset at a pre-specified price in the future.

Answer: (B)

$$\begin{aligned} \text{Long call profit}_{\text{per share}} &= Max[0, S - K] - \text{premium} \\ &= Max[0, \$123 - \$120] - \$5 \\ &= \$3 - \$5 = -\$2 \end{aligned}$$

Part B - Options

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(A) \$200 profit

(B) \$200 loss

(C) \$300 profit

(D) \$300 loss

Note: A call option is the right to **buy** an asset at a pre-specified price in the future.

Answer: (B)

$$\begin{aligned} \text{Long call profit}_{\text{per share}} &= Max[0, S - K] - \text{premium} \\ &= Max[0, \$123 - \$120] - \$5 \\ &= \$3 - \$5 = -\$2 \end{aligned}$$

Alternatively, Long call profit = Max[0, (\$123 − \$120) (100)] − \$500 = −\$200

Part B - Options

Exercise 18

You purchase one MBI July 125 call contract (equaling 100 shares) for a premium of $5. You hold the option until the expiration date, when MBI stock sells for $123 per share. You will realize a _____on the investment.

(A) $200 profit

(B) $200 loss

(C) $500 profit

(D) $500 loss

Part B - Options

Exercise 18

You purchase one MBI July 125 call contract (equaling 100 shares) for a premium of $5. You hold the option until the expiration date, when MBI stock sells for $123 per share. You will realize a _____on the investment.

(A) $200 profit

(B) $200 loss

(C) $500 profit

(D) $500 loss

Note: This time you have the right to buy the asset for $125, instead of $120.

Part B - Options

Exercise 18

You purchase one MBI July 125 call contract (equaling 100 shares) for a premium of \$5. You hold the option until the expiration date, when MBI stock sells for \$123 per share. You will realize a _____on the investment.

(A) \$200 profit

(B) \$200 loss

(C) \$500 profit

(D) \$500 loss

Note: This time you have the right to buy the asset for \$125, instead of \$120.

Answer: (D)

$$\begin{aligned} \text{Long call profit}_{\text{per share}} &= Max[0, S - K] - \text{premium} \\ &= Max[0, \$123 - \$125] - \$5 \\ &= \mathbf{0} - \$5 = -\$5 \end{aligned}$$

Part B - Options

Exercise 18

You purchase one MBI July 125 call contract (equaling 100 shares) for a premium of \$5. You hold the option until the expiration date, when MBI stock sells for \$123 per share. You will realize a _____on the investment.

(A) \$200 profit

(B) \$200 loss

(C) \$500 profit

(D) \$500 loss

Note: This time you have the right to buy the asset for \$125, instead of \$120.

Answer: (D)

$$\begin{aligned} \text{Long call profit}_{\text{per share}} &= Max[0, S - K] - \text{premium} \\ &= Max[0, \$123 - \$125] - \$5 \\ &= \mathbf{0} - \$5 = -\$5 \end{aligned}$$

Alternatively, Long call profit = Max[0, (\$123 − \$125) (100)] − \$500 = −\$500

Part B - Options

Exercise 19

You **write** one MBI July 120 call contract (equaling 100 shares) for a premium of $4. You hold the option until the expiration date, when MBI stock sells for $121 per share. You will realize a _____ on the investment.

(A) $300 profit

(B) $200 loss

(C) $600 loss

(D) $200 profit

Part B - Options

Exercise 19

You **write** one MBI July 120 call contract (equaling 100 shares) for a premium of $4. You hold the option until the expiration date, when MBI stock sells for $121 per share. You will realize a _____ on the investment.

(A) $300 profit

(B) $200 loss

(C) $600 loss

(D) $200 profit

Note: This time you are obliged to sell the asset for $120.

Part B - Options

Exercise 19

You **write** one MBI July 120 call contract (equaling 100 shares) for a premium of \$4. You hold the option until the expiration date, when MBI stock sells for \$121 per share. You will realize a _____ on the investment.

(A) \$300 profit

(B) \$200 loss

(C) \$600 loss

(D) \$200 profit

Note: This time you are obliged to sell the asset for \$120.

Answer: (A)

$$\begin{aligned}\text{Short call profit}_{\text{per share}} &= Min[0, K - S] + \text{premium} \\ &= Min[0, \$120 - \$121] + \$4 \\ &= -1 + \$4 = \$3\end{aligned}$$

Part B - Options

Exercise 19

You **write** one MBI July 120 call contract (equaling 100 shares) for a premium of \$4. You hold the option until the expiration date, when MBI stock sells for \$121 per share. You will realize a _____ on the investment.

(A) \$300 profit

(B) \$200 loss

(C) \$600 loss

(D) \$200 profit

Note: This time you are obliged to sell the asset for \$120.

Answer: (A)

$$\begin{aligned} \text{Short call profit}_{\text{per share}} &= Min[0, K - S] + \text{premium} \\ &= Min[0, \$120 - \$121] + \$4 \\ &= -1 + \$4 = \$3 \end{aligned}$$

Alternatively, Short call profit = Min[0, (\$120 − \$121) (100)] + \$400 = +\$300

Part B - Options

Exercise 20

If an asset price declines, the investor with a _____ is exposed to the largest potential loss.

(A) long call option

(B) long put option

(C) long futures contract

(D) short futures contract

Part B - Options

Exercise 20

If an asset price declines, the investor with a _____ is exposed to the largest potential loss.

(A) long call option

(B) long put option

(C) long futures contract

(D) short futures contract

Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Part B - Options

Exercise 20

If an asset price declines, the investor with a _____ is exposed to the largest potential loss.

(A) long call option

(B) long put option

(C) long futures contract

(D) short futures contract

Note: A futures contract is an **obligation** for two parties to exchange a specified amount of a good for some agreed price (futures price) at a given date in the future.

Answer: (C)

By entering a futures contract, you committed to buying an asset at a fixed price, F, while its price dropped to S, $S < F$

Part B - Options

Exercise 21

Which one of the following contracts requires no cash to change hands when initiated?

(A) put option

(B) short futures contract

(C) forward contract

(D) listed call option

Answer: (C)

Part B - Options

Exercise 22

_____ option can only be exercised on the expiration date.

(A) A Mexican

(B) An Asian

(C) An American

(D) A European

Answer: (D)

Part B - Options

Exercise 23

All else the same, an American-style option will be _____ valuable than a _____ style option.

(A) more; European-

(B) less; European-

(C) more; Canadian-

(D) less; Canadian-

Answer: (A)

Part B - Options

Exercise 24

At contract maturity, the value of a call option is _____, where X equals the option's strike price and S_T is the stock price at contract expiration.

(A) $\max(0, S_T - X)$

(B) $\min(0, S_T - X)$

(C) $\max(0, X - S_T)$

(D) $\min(0, X - S_T)$

Note: A call option is the right to **buy** an asset at a pre-specified price in the future.

Part B - Options

Exercise 24

At contract maturity, the value of a call option is _____, where X equals the option's strike price and S_T is the stock price at contract expiration.

(A) $\max(0, S_T - X)$

(B) $\min(0, S_T - X)$

(C) $\max(0, X - S_T)$

(D) $\min(0, X - S_T)$

Note: A call option is the right to **buy** an asset at a pre-specified price in the future.

Answer: (A)

The holder of a call option will only exercise it if $S_T > X$, that is when s/he can buy the underlying asset at a lower price.

Part B - Options

Exercise 25

At contract maturity, the value of a put option is _____, where X equals the option's strike price and S_T is the stock price at contract expiration.

(A) $\max(0, S_T - X)$

(B) $\min(0, S_T - X)$

(C) $\max(0, X - S_T)$

(D) $\min(0, X - S_T)$

Note: A put option is the right to **sell** an asset at a pre-specified price in the future.

Part B - Options

Exercise 25

At contract maturity, the value of a put option is _____, where X equals the option's strike price and S_T is the stock price at contract expiration.

(A) $\max(0, S_T - X)$

(B) $\min(0, S_T - X)$

(C) $\max(0, X - S_T)$

(D) $\min(0, X - S_T)$

Note: A put option is the right to **sell** an asset at a pre-specified price in the future.

Answer: (C)

The holder of a put option will only exercise it if $S_T < X$, that is when s/he can sell the underlying asset at a higher price.

Part B - Options

Exercise 26

Strips and straps are variations of _____.

(A) straddles

(B) collars

(C) money spreads

(D) time spreads

Part B - Options

Exercise 26

Strips and straps are variations of _____.

(A) straddles

(B) collars

(C) money spreads

(D) time spreads

Note: These are investment strategies that involve options. Straddles yield positive payoffs when the stock price at maturity diverges in either direction from X.

Answer: (A)

Part B - Options

Exercise 27

You write a put option on a stock. The profit at contract maturity of the option position is _____, where X equals the option's strike price, S_T is the stock price at contract expiration, and P_0 is the original premium of the put option.

(A) $\max(P_0, X - S_T - P_0)$

(B) $\min(-P_0, X - S_T - P_0)$

(C) $\min(P_0, S_T - X + P_0)$

(C) $\max(0, S_T - X - P_0)$

Note: The **writer** of a put option is obliged to **buy** an asset at a pre-specified price.

Part B - Options

Exercise 27

You write a put option on a stock. The profit at contract maturity of the option position is _____, where X equals the option's strike price, S_T is the stock price at contract expiration, and P_0 is the original premium of the put option.

(A) $\max(P_0, X - S_T - P_0)$

(B) $\min(-P_0, X - S_T - P_0)$

(C) $\min(P_0, S_T - X + P_0)$

(C) $\max(0, S_T - X - P_0)$

Note: The **writer** of a put option is obliged to **buy** an asset at a pre-specified price.

Answer: (C) The holder of your put option only sells the underlying asset if its price goes up, that is if $S_T > X$, in which case you are required to buy it.

$$\begin{aligned} \text{Short put profit}_{\text{per share}} &= min[0, (S_T - X)] + P_0 \\ &= min[P_0, S_T - X + P_0] \end{aligned}$$

Part B - Options

Exercise 28

You buy a call option on Merritt Corp. with an exercise price of $50 and an expiration date in July, and you write a call option on Merritt Corp. with an exercise price of $55 and an expiration date in July. This is called a _____.

(A) time spread

(B) long straddle

(C) short straddle

(D) money spread

Part B - Options

Exercise 28

You buy a call option on Merritt Corp. with an exercise price of \$50 and an expiration date in July, and you write a call option on Merritt Corp. with an exercise price of \$55 and an expiration date in July. This is called a _____.

(A) time spread

(B) long straddle

(C) short straddle

(D) money spread

Note: This investment strategy entails **an option on a stock** along with **another option of the same type on the same stock, BUT, with a different strike price** $X_1 \neq X_2$. This is called a money spread.

Answer: (D)

Part B - Options

Exercise 29

Suppose you purchase one Texas Insurance August 75 call contract quoted at $8.50 and write one Texas Insurance August 80 call contract quoted at $6. If, at expiration, the price of a share of Texas Instruments stock is $79, your profit would be _____.

(A) $150

(B) $400

(C) $600

(D) $1850

Part B - Options

Exercise 29

Suppose you purchase one Texas Insurance August 75 call contract quoted at \$8.50 and write one Texas Insurance August 80 call contract quoted at \$6. If, at expiration, the price of a share of Texas Instruments stock is \$79, your profit would be _____.

(A) \$150

(B) \$400

(C) \$600

(D) \$1850

Note: You are buying a call at a given strike price, and writing a call at a different strike price. This strategy is a money spread.

Part B - Options

Exercise 29

Suppose you purchase one Texas Insurance August 75 call contract quoted at \$8.50 and write one Texas Insurance August 80 call contract quoted at \$6. If, at expiration, the price of a share of Texas Instruments stock is \$79, your profit would be _____.

(A) \$150

(B) \$400

(C) \$600

(D) \$1850

Note: You are buying a call at a given strike price, and writing a call at a different strike price. This strategy is a money spread.

Answer: (A) $S_T = 79$, $K_1 = 75$ and $K_2 = 80$

$$\begin{aligned}\text{Profit}_{\text{per share}} &= max[0, S - K_1] - \text{premium} + min[0, K_2 - S] + \text{premium} \\ &= max[0, 79 - 75] - 8.50 + min[0, 80 - 79] + 6 \\ &= 4 - 8.50 + 0 + 6 = 1.50\end{aligned}$$

Alternatively, Profit $= 100[(79 - 75)] - 8.50 + 6] = \$150$.

Part B - Options

Exercise 30

You are cautiously bullish on the common stock of the Wildwood Corporation over the next several months. The current price of the stock is $50 per share. You want to establish a bullish money spread to help limit the cost of your option position. You find the following option quotes:

Expiration	Strike	Call	Put
June	45.00	8.50	2.00
June	50.00	4.50	3.00
June	55.00	2.00	7.50

If in June the stock price is $53, your net profit on the **bull money spread** (buy the 45 call and sell the 55 call) would be _____.

(A) $300 (B) -$400 (C) $150 (D) $50

Part B - Options

Exercise 30

You are cautiously bullish on the common stock of the Wildwood Corporation over the next several months. The current price of the stock is \$50 per share. You want to establish a bullish money spread to help limit the cost of your option position. You find the following option quotes:

Expiration	Strike	Call	Put
June	45.00	8.50	2.00
June	50.00	4.50	3.00
June	55.00	2.00	7.50

If in June the stock price is \$53, your net profit on the **bull money spread** (buy the 45 call and sell the 55 call) would be _____.

(A) \$300 (B) -\$400 (C) \$150 (D) \$50

Note: A bull money spread with calls, $S_T = 53$, $K_1 = 45$ and $K_2 = 55$.

Part B - Options

Exercise 30

You are cautiously bullish on the common stock of the Wildwood Corporation over the next several months. The current price of the stock is \$50 per share. You want to establish a bullish money spread to help limit the cost of your option position. You find the following option quotes:

Expiration	Strike	Call	Put
June	45.00	8.50	2.00
June	50.00	4.50	3.00
June	55.00	2.00	7.50

If in June the stock price is \$53, your net profit on the **bull money spread** (buy the 45 call and sell the 55 call) would be _____.

(A) \$300 (B) -\$400 (C) \$150 (D) \$50

Note: A bull money spread with calls, $S_T = 53$, $K_1 = 45$ and $K_2 = 55$.

Answer: (C)

Profit = [Max (0, \$53 − \$45) − Max (0, \$53 − \$55)](100) − \$650 = \$150

Part B - Options

Exercise 31

You are cautiously bullish on the common stock of the Wildwood Corporation over the next several months. The current price of the stock is $50 per share. You want to establish a bullish money spread to help limit the cost of your option position. You find the following option quotes:

Expiration	Strike	Call	Put
June	45.00	8.50	2.00
June	50.00	4.50	3.00
June	55.00	2.00	7.50

Suppose you establish a bullish money spread with the puts. In June the stock's price turns out to be $52. Ignoring commissions, the net profit on your position is _____.

(A) $500 (B) $700 (C) $200 (D) $250

Part B - Options

Exercise 31

You are cautiously bullish on the common stock of the Wildwood Corporation over the next several months. The current price of the stock is \$50 per share. You want to establish a bullish money spread to help limit the cost of your option position. You find the following option quotes:

Expiration	Strike	Call	Put
June	45.00	8.50	2.00
June	50.00	4.50	3.00
June	55.00	2.00	7.50

Suppose you establish a bullish money spread with the puts. In June the stock's price turns out to be \$52. Ignoring commissions, the net profit on your position is _____.

(A) \$500 (B) \$700 (C) \$200 (D) \$250

Note: A bull money spread with puts, $S_T = 52$, $K_1 = 45$ and $K_2 = 55$.

Part B - Options

Exercise 31

You are cautiously bullish on the common stock of the Wildwood Corporation over the next several months. The current price of the stock is \$50 per share. You want to establish a bullish money spread to help limit the cost of your option position. You find the following option quotes:

Expiration	Strike	Call	Put
June	45.00	8.50	2.00
June	50.00	4.50	3.00
June	55.00	2.00	7.50

Suppose you establish a bullish money spread with the puts. In June the stock's price turns out to be \$52. Ignoring commissions, the net profit on your position is _____.

(A) \$500 (B) \$700 (C) \$200 (D) \$250

Note: A bull money spread with puts, $S_T = 52$, $K_1 = 45$ and $K_2 = 55$.

Answer: (D)
The initial revenue is $(\$7.50 - \$2)(100) = \$550$.

$$\begin{aligned}\text{Profit} &= P_{45,\text{June}} - P_{55,\text{June}} + \text{Initial revenue} \\ &= [Max(0, 45 - 52) - Max(0, 55 - 52)](100) + 550 = 250.\end{aligned}$$

Part B - Options

Exercise 32

If you combine a long stock position with selling an at-the-money call option, the resulting net payoff profile will resemble the payoff profile of a _____.

(A) long call

(B) short call

(C) short put

(D) long put

Answer: (C)

Part B - Options

Exercise 33

You are convinced that a stock's price will move by at least 15% over the next 3 months. You are not sure which way the price will move, but you believe that the results of a patent hearing are definitely going to have a major effect on the stock price. You are somewhat more bullish than bearish however. Which one of the following options strategies best fits this scenario?

(A) buy a strip

(B) buy a strap

(C) buy a straddle

(D) write a straddle

Part B - Options

Exercise 33

You are convinced that a stock's price will move by at least 15% over the next 3 months. You are not sure which way the price will move, but you believe that the results of a patent hearing are definitely going to have a major effect on the stock price. You are somewhat more bullish than bearish however. Which one of the following options strategies best fits this scenario?

(A) buy a strip

(B) buy a strap

(C) buy a straddle

(D) write a straddle

Note: A strap is the more bullish version of a straddle. A straddle gives the investor positive payoffs when the stock price at maturity diverges in either direction.

Answer: (B)

Part B - Options

Exercise 34

Bill Jones inherited 5,000 shares of stock priced at $45 per share. He does not want to sell the stock this year due to tax reasons, but he is concerned that the stock will drop in value before year-end. Bill wants to use a **collar** to ensure that he minimizes his risk and doesn't incur too much cost in deferring the gain. January call options with a strike of $50 are quoted at a cost of $2, and January puts with a $40 exercise price are quoted at a cost of $3. If Bill establishes the collar and the stock price winds up at $35 in January, Bill's net position value including the option profit or loss and the stock is _____.

(A) $195,000 (B) $220,000 (C) $175,000 (D) $215,000

Part B - Options

Exercise 34

Bill Jones inherited 5,000 shares of stock priced at $45 per share. He does not want to sell the stock this year due to tax reasons, but he is concerned that the stock will drop in value before year-end. Bill wants to use a **collar** to ensure that he minimizes his risk and doesn't incur too much cost in deferring the gain. January call options with a strike of $50 are quoted at a cost of $2, and January puts with a $40 exercise price are quoted at a cost of $3. If Bill establishes the collar and the stock price winds up at $35 in January, Bill's net position value including the option profit or loss and the stock is _____.

(A) $195,000 (B) $220,000 (C) $175,000 (D) $215,000

Note: A **collar** is a strategy that is constructed by holding shares of the stock while simultaneously buying protective puts and selling call options against that holding.

Part B - Options

Exercise 34

Bill Jones inherited 5,000 shares of stock priced at $45 per share. He does not want to sell the stock this year due to tax reasons, but he is concerned that the stock will drop in value before year-end. Bill wants to use a **collar** to ensure that he minimizes his risk and doesn't incur too much cost in deferring the gain. January call options with a strike of $50 are quoted at a cost of $2, and January puts with a $40 exercise price are quoted at a cost of $3. If Bill establishes the collar and the stock price winds up at $35 in January, Bill's net position value including the option profit or loss and the stock is _____.

(A) $195,000 (B) $220,000 (C) $175,000 (D) $215,000

Note: A **collar** is a strategy that is constructed by holding shares of the stock while simultaneously buying protective puts and selling call options against that holding.

Part B - Options

Exercise 34

Note: A **collar** is a strategy that is constructed by holding shares of the stock while simultaneously buying protective puts and selling call options against that holding.

Answer: **(A)** Bill's net position is \$195,000.

- $P_0 = \$45$, $P_1 = \$35$, $K_{call} = \$50$, $K_{put} = \$40$
- Position value $= 5000$ shares $\times$ \$45 share $= \$225{,}000$.
- To establish a collar, you would need $5{,}000/100 = 50$ options.
- You would buy the 50 puts at a cost of $\$3(100)(50) = \$15{,}000$ and write the 50 calls, earning a premium of $\$2(100)(50) = \$10{,}000$. The initial cost is $\$15{,}000 - \$10{,}000 = \$5{,}000$.

Part B - Options

Exercise 34

Note: A **collar** is a strategy that is constructed by holding shares of the stock while simultaneously buying protective puts and selling call options against that holding.

Answer: **(A)** Bill's net position is \$195,000.

- $P_0 = \$45$, $P_1 = \$35$, $K_{call} = \$50$, $K_{put} = \$40$
- Position value = 5000 shares $\times$ \$45 share = \$225,000.
- To establish a collar, you would need $5{,}000/100 = 50$ options.
- You would buy the 50 puts at a cost of $\$3(100)(50) = \$15{,}000$ and write the 50 calls, earning a premium of $\$2(100)(50) = \$10{,}000$. The initial cost is $\$15{,}000 - \$10{,}000 = \$5{,}000$.
- If the stock price in January is \$35, then profit can be found as:

$$\begin{aligned} \text{Profit} &= [Max(0, K_{put} - P_1) - Max(0, P_1 - K_{call})](100)(50) - 5, \\ &= [Max(0, 40 - 35) - Max(0, 35 - 50)](100)(50) - 5, \\ &= 20,000 \end{aligned}$$

and the new stock value = 5000 shares $\times$ \$35 = 175,000.

So the net position value is $\$175,000 + \$20,000 = \$195,000$ (Bill writes a loss)

Part B - Options

Exercise 35

You own a stock portfolio worth $50,000. You are worried that stock prices may take a dip before you are ready to sell, so you are considering purchasing either at-the-money or out-of-the-money puts. If you decide to purchase the out-of-the-money puts, your maximum loss is _____ than if you buy at-the-money puts and your maximum gain is _____.

(A) greater; lower

(B) greater; greater

(C) lower; greater

(D) lower; lower

Part B - Options

Exercise 35

You own a stock portfolio worth $50,000. You are worried that stock prices may take a dip before you are ready to sell, so you are considering purchasing either at-the-money or out-of-the-money puts. If you decide to purchase the out-of-the-money puts, your maximum loss is _____ than if you buy at-the-money puts and your maximum gain is _____.

(A) greater; lower

(B) greater; greater

(C) lower; greater

(D) lower; lower

Note: At the money put entails that the price of the stock equals the strike price.

Answer: (B)