Introduction to Derivatives and Risk Management 10th edition Chance Solutions Manual

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CHAPTER 2: STRUCTURE OF OPTIONS MARKETS

END-OF-CHAPTER QUESTIONS AND PROBLEMS

1. (**Types of Derivatives**) a. The call holder exercises the call, buying the asset for $100. The put holder does not exercise the put. The holder of the long forward contract must buy the asset for $100.
b. The call holder does not exercise the call. The put holder exercises the put, selling the asset for $95. The holder of the long forward contract must buy the asset for $100.

2. (**Options**) You should first create an example in which the asset price is a certain number. Then create a call and a put with a lower exercise price. The call would be in-the-money and the put would be out-of-the money. Then create an example of a call and a put with a higher exercise price. The call would then be out-of-the-money and the put would be in-the-money.

3. (**Swaps**) A forward is the obligation to pay a fixed price or rate and receive something whose value varies. A swap is a combination of forwards in that it provides multiple obligations to pay a fixed price or rate and receive something whose value varies. These multiple obligations have various expirations spaced over a defined period of time.

4. (**Other Types of Derivatives**) A real option is one of many rights a company has in many of its capital investment projects, such as the option to delay launching a project, extend the life of a project, or increase or decrease the scale of a project. Traditional net present value analysis merely discounts the expected cash inflows and outflows of an investment project but does not take into account the fact that after the project is started there may be additional information that can affect decisions a company would make. Traditional NPV analysis more or less makes all decisions for the life of the project at the start.

5. (**Introduction and Evolution of Financial Derivatives**) a. The CME and CBOE are both in Chicago but they are not the same company. The New York Stock Exchange and LIFFE are part of the NYSE-Euronext company of exchanges. The Chicago Board of Trade and New York Mercantile Exchange are both part of the CME Group.

6. (**Standardization of Contracts**) d. The price of the derivative. The price is always negotiated between the two parties. All other terms are established by the exchange.

7. (**Standardization of Contracts**) For some contracts, the clearinghouses establish maximum and minimum prices at which a contract can trade on a given day. The purpose is to limit large price changes, which can result in large losses for certain parties. The clearinghouse is ultimately responsible for these losses, so it seeks to collect funds before prices move much more and further losses are incurred.

8. (**Options**) With each contract covering 100 options, 20 call contracts at $2.25 would ordinarily generate a premium of $4,500. Normally the premium goes from the call buyer to the call seller, but on an exchange-listed option, it passes from through the call buyer's broker, the broker's clearing firm, and into the clearinghouse. In other words, the seller cannot get its hands on the premium until fulfilling its obligation through exercise, or when the contract expires.

9. (**Expiration and Exercise Procedures**) Physical delivery literally requires that the underling be delivered to a specific location or, for securities, transferred electronically to the opposite party. In case settlement, one party simply pays the other the cash equivalent value. For example, if A is to pay B ¥10,000 for an asset worth ¥12,000 , physical delivery would require that B deliver the asset to A and A pay B ¥10,000. A has then acquired an asset that is worth ¥2,000 more than what it paid. In a cash settlement, B would merely pay ¥2,000. If A wanted the asset, it could buy it for ¥12,000, resulting in a net cost of ¥10,000.

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10. (**Over-the-Counter Derivatives Trading**) Bilateral clearing is clearing between two parties. They simply impose whatever requirements they wish on each other to minimize the credit risk as they see fit. In multilateral clearing, there is a third party, the clearinghouse (sometimes called the central counterparty), which steps in between the two parties. It imposes margin requirements and marks accounts to market daily. With numerous parties engaged in transactions, it can also net across parties. So, if A is owed money from B and owes money to C, the clearinghouse pays A only the net of the two amounts. This greatly reduces the credit risk.

11. (**Market Participants**) Proprietary trading is the trading that banks and derivatives dealers do for themselves in order to make a profit. Proprietary trading is essentially speculative, though not always purely speculative, as it may involve some hedging.

12. (**Bid-Ask Spreads**) The bid-ask spread is the cost of trading immediately, as opposed to having to wait on a buyer or seller to take the opposite side. You buy at the bid and sell at the ask, with the latter higher. So, for example, if the price is $25 bid and $26 ask, you buy at the ask. If you immediately sell, you would sell at the bid, thereby incurring a $1 loss.

13. (**Bid-Ask Spreads**) Using the above example, if you bought at the ask of $26, to make a profit, the bid would need to get past $26. So in effect, both prices would need to rise by $1, the amount of the spread. So, in general, with a constant spread, the price must increase by the amount of the spread. This is another way of seeing that the bid-ask spread is a transaction cost. Just like a commission, the price must rise by enough to cover the spread.

14. (**Regulation of Derivatives Markets**) The four objectives of the Dodd-Frank Act are transparency, clearing, disclosure, and reduction of systemic risk.

15. (**Daily Settlement**) An initial margin is the minimum amount that must be deposited on the first day or a transaction. The maintenance margin is the minimum amount that must be in the account any day thereafter. An exception, however, is that if a margin call occurs on a futures account, you must deposit sufficient funds to bring the balance up to the initial margin, not the maintenance. The additional funds that you must deposit is called the variation margin,

16. (**Physical versus Electronic Trading**) In an open-outcry system, also known as physical trading, traders meet in a physical location and shout their bids and offers. (In addition, they use hand signals.) In electronic trading, they place their bids and offers into an electronic system. Thus, a trader can be anywhere there is a computer with access to the exchange's systems.

17. (**Expiration and Exercise Procedures**) An offsetting transaction involves a trader merely going into the market and doing the opposite of his previous trade. Thus, someone who previously bought an option or futures expiring in a certain month would sell an option or futures expiring in a certain month. A cash settlement occurs at expiration, and involves one party paying a cash amount owed to the other. Physical delivery involves one party delivering the underlying to the other, with the latter paying the former the amount owed.

18. (**Over-the-Counter Derivatives Trading**) The ISDA Master Agreement is a template contract between two parties to an OTC derivatives transaction in which all of the legal issues have been worked out in advance. The contract can then be filled in with times and dates that are unique to the transaction. The ISDA Master Agreement also stipulates that upon default, any amount owed by one party to the other will be netted against all other amounts they may owe each other on other transactions.

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19. (**Daily Settlement**)

Date	Settlement Price	Settlement Price ($)	Mark-to-Market	Other Entries	Account Balance
7/1	453.95	226,975	850	9,000	9,850
7/2	454.50	227,250	275		10,125
7/3	452.00	226,000	–1,250		8,875
7/7	443.55	221,775	–4,225		4,650
7/8	441.65	220,825	–950	+4,350	8,050
7/9	442.85	221,425	600		8,650
7/10	444.15	222,075	650		9,300
7/11	442.25	221,125	–950		8,350
7/14	438.30	219,150	–1,975		6,375
7/15	435.05	217,525	–1,625		4,750
7/16	435.50	217,750	225	4,250	9,225

Explanation of Other Entries:
7/1: Initial margin deposit of $9,000
7/8: Balance on 7/7 was $4,650, which is below $6,000 maintenance margin. Required to deposit $4,350 to bring balance up to initial margin of $9,000
7/16: Balance on 7/15 was $4,750, which is below $6,000 maintenance margin. Required to deposit $4,250 to bring balance up to initial margin of $9,000

20. (**Daily Settlement**) You start off with $3,375 in your account. It can drop to $2,500, a difference of $875, before you get a margin call. The price changes in increments of $0.01. Since you have a contract on 1,000 barrels, each move of $0.01 is a change in the margin account balance of 1,000($0.01) = $10. To loss $875, there must be $875/$10 = 87.5 moves of $0.01, or a decrease in the contract price of $0.875. Since each move is a minimum of $0.01, it must fall by $0.88. That would take the price from $27.42 to $27.42 – $0.88 = $26.54.

21. (**Regulation of Derivatives Markets**) The Basel Committee is an attempt on the part of various countries to align their banking regulations, particularly in regard to how much capital banks are required to have in light of the risks they take. Unfortunately, the Basel Committee regulations are voluntary. Thus, a country could disagree with the regulations and not require that its banks conform.

22. (**Over-the-Counter Derivatives Trading**) Notional amount (or sometimes principal) is a very accurate measure of the size of a transaction in that it is written into the contract. Notional amount measures the size of the underlying on which the derivative is based. Nonetheless, notional amount does not accurately reflect the amount of money at risk, which is better indicated by market value. Market value, however, must be estimated, so it is subject to error.

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