Mechanics of Options Markets

Chapter 8
Review of Option Types

- A call is an option to buy
- A put is an option to sell
- A European option can be exercised only at the end of its life
- An American option can be exercised at any time
Option Positions

- Long call
- Long put
- Short call
- Short put
Long Call on eBay
(Figure 8.1, Page 182)

Profit from buying one eBay European call option: option price = $5, strike price = $100, option life = 2 months

![Graph showing profit from buying one eBay European call option. The x-axis represents the terminal stock price in dollars, ranging from 70 to 130. The y-axis represents profit in dollars, ranging from -5 to 30. The graph shows a linear increase in profit as the terminal stock price increases.](image-url)
Short Call on eBay
(Figure 8.3, page 184)

Profit from writing one eBay European call option: option price = $5, strike price = $100
Long Put on IBM
(Figure 8.2, page 183)

Profit from buying an IBM European put option: option price = $7, strike price = $70
Short Put on IBM
(Figure 8.4, page 184)

Profit from writing an IBM European put option: option price = $7, strike price = $70
Payoffs from Options

What is the Option Position in Each Case?

$K =$ Strike price, $S_T =$ Price of asset at maturity
Assets Underlying Exchange-Traded Options

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- Stocks
- Foreign Currency
- Stock Indices
- Futures
Specification of Exchange-Traded Options

- Expiration date
- Strike price
- European or American
  - In Taiwan, index option and stock option is European, but the warrant is American
- Call or Put (option class)
Terminology

- Moneyness:
  - At-the-money option
  - In-the-money option
  - Out-of-the-money option
Terminology (continued)

- **Option class**
  - call or put

- **Option series**
  - Consist of all the options of a given class with the same expiration date and strike price
  - In other word, an option series refers to a particular contract that is traded

- **Intrinsic value**

- **Time value**
Suppose you own N options with a strike price of $K$:
- No adjustments are made to the option terms for cash dividends (Exchange-traded option)
- When there is an $n$-for-$m$ stock split,
  - the strike price is reduced to $mK/n$
  - the no. of options is increased to $nN/m$
- Stock dividends are handled in a manner similar to stock splits

* In Taiwan, warrants are with cash- and stock-dividend protection, but index options are only with stock-dividend protection
Consider a call option to buy 100 shares for $20/share

How should terms be adjusted:
- for a 2-for-1 stock split?
- for a 25% stock dividend?
Market Makers

- Most exchanges use market makers to facilitate options trading
- A market maker quotes both bid and ask prices when requested
- The market maker does not know whether the individual requesting the quotes wants to buy or sell
Margins (Page 194-195)

- Margins are required when options are sold
- When a naked option is written the margin is the greater of:
  1. A total of 100% of the proceeds of the sale plus 20% of the underlying share price less the amount (if any) by which the option is out of the money
  2. A total of 100% of the proceeds of the sale plus 10% of the underlying share price
- For other trading strategies there are special rules
Warrants

- Warrants are options that are issued by a corporation or a financial institution.
- The number of warrants outstanding is determined by the size of the original issue and changes only when they are exercised or when they expire.
Warrants (continued)

- Warrants are traded in the same way as stocks
- The issuer settles up with the holder when a warrant is exercised
- When call warrants are issued by a corporation on its own stock, exercise will lead to new treasury stock being issued
Executive Stock Options

- Executive stock options are a way of remuneration issued by a company to its executives.
- They are usually at the money when issued.
- When options are exercised, the company issues more stock and sells it to the option holder for the strike price.
Executive Stock Options continued

- They become vested after a period of time (usually 1 to 4 years)
- They cannot be sold
- They often last for as long as 10 or 15 years
- Accounting standards now require the expensing of executive stock options
Convertible Bonds

- Convertible bonds are regular bonds that can be exchanged for equity at certain times in the future according to a predetermined exchange ratio.
- Very often a convertible is callable.
- The call provision is a way in which the issuer can force conversion at a time earlier than the holder might otherwise choose.